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THE

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OF THE

MEDICAL SCIENCES.

EDITED BY

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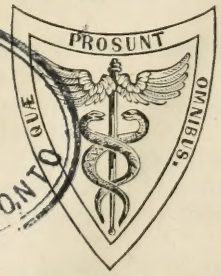
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The following works have been received:—

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Second series. Vol. XV. London, 1850. (From the Society.)

Transactions of the American Medical Association. Vol. III. Philadelphia, 1850.

The New Jersey Medical Reporter, and Transactions of the New Jersey Medical Society. Edited by Joseph Parrish, M. D. October, 1850.

Proceedings of the first annual meeting of the Indiana State Medical Society, held in the city of Indianapolis. May, 1850.

The Classification of Insects from Embryological Data. By Prof. Louis Agassiz. (Presented to the American Association for the Advancement of Science at Cambridge. August, 1849. (From the Author.)

Contributions to the Natural History of the Acalephæ of North America. By L. Agassiz. (From the Author.)

Renal Affections: their Diagnosis and Pathology. By Charles Frick, M. D. Philadelphia, 1850. (From the Publishers.)

The Races of Men. A Fragment. By Robt. Knox, M. D., Lecturer on Anatomy, &c. Philadelphia: Lea & Blanchard, 1850. (From the Publishers.)

Woman; her Disease and Remedies. A series of Letters to his Class. By Charles D. Meigs, M. D., Professor, &c. Philadelphia: Lea & Blanchard, 1850. (From the Publishers.)

Proceedings of the Medical Convention, for the purpose of organizing the Illinois State Medical Society, held at Springfield, June 4th, 1850; together with the constitution, by-laws, and code of Ethics, adopted by the Society. Chicago, 1850.

Transactions of the Belmont Medical Society for 1849–50. Published by the Society. Bridgeport, Ohio, 1850.

Summary of the Transactions of the College of Physicians of Philadelphia. (June 7th to Oct. 1, 1850, inclusive.)

Household Surgery: or Hints on Emergencies. By John F. South, one of the Surgeons of St. Thomas' Hospital. First American, from the second London edition. Philadelphia: Henry Carey Baird, successor to E. L. Carey, 1850. (From the Publisher.)

A Treatise on the Diseases and Surgical Operations of the Mouth, and parts adjacent; with notes of interesting cases, ancient and modern. By M. Jourdain, Dentist, &c. Translated from the last French edition. Philadelphia: Lindsay & Blakiston, 1850. (From the Publishers.)

Sleep, Psychologically considered with reference to Sensation and Memory. By Blanchard Fosgate, M. D., Physician to New York State Prison at Auburn. New York, 1850. (From the Author.)

Review of Chemistry for Students. Adapted to the courses as taught in the

633

principal Medical Schools of the United States. By John G. Murphy, M. D. Philadelphia: Lindsay & Blakiston, 1850. (From the Publishers.)

Address before the American Medical Association, at the Anniversary Meeting in Cincinnati, May 8th, 1850. By J. C. Warren, M. D., President of the Association. Boston, 1850.

Report of the Standing Committee on Medical Literature, presented to the American Medical Association at its third Annual Meeting, held in Cincinnati, May, 1850. Philadelphia, 1850. (From Dr. A. Stillé.)

Annual Report of the keeper of the Kentucky Penitentiary.

Report of a Case, read before the Medical Society of East Tennessee, at the fall Session, 1850, held at Knoxville, in which the Diagnosis was Disease of the Kidney. By Frank A. Ramsay, M. D. Knoxville, Tenn., 1850. (From the Author.)

Fourteenth Annual Report of the Directors and Superintendent of the Vermont Asylum for the Insane. September, 1850. Rutland, 1850.

An Inquiry into the Principles and Practice of Homœopathy; an Address delivered before the Society of Inquiry, at Oberlin. B. J. Dascomb, M. D. Elyria, Ohio. (From Dr. Horner Johnson.)

Statistics of the Amputations of the larger Limbs that have been performed at the Massachusetts General Hospital, from its establishment to January 1, 1850. By George Hayward, M. D., one of the Surgeons to the Hospital. Boston, 1850. (From the Author.)

An Inaugural Essay on Zoo-adynamia, presented for the degree of Doctor of Medicine in the University of Pennsylvania. By George J. Ziegler, M. D. Published on the recommendation of Professor Jackson. Philadelphia, 1850. (From the Author.)

On the comparative liability of Males and Females to Insanity, and their comparative curability and mortality when Insane. By Edward Jarvis, M. D., of Dorchester, Mass. Utica, 1850. (From the Author.)

Code of Rules and Regulations for the government of those employed in the care of the patients of the Pennsylvania Hospital for the Insane, near Philadelphia. Second edition. Prepared and printed by authority of the Board of Managers. Philadelphia, 1850. (From Dr. Thomas S. Kirkbride.)

Lecture upon the Utility of Medical Organization: delivered before the Delaware County Medical Society, on the 26th of August, 1850. By R. K. Smith, M. D. Published at the request of the Society.

Introductory Lecture to the course of Lectures on the Theory and Practice in the University of Pennsylvania. By Geo. B. Wood, M. D. Delivered Oct. 11th, 1850. Published by the class. Philadelphia, 1850. (From the Author.)

Lecture, introductory to the Course, on the Theory and Practice of Medicine in the Medical College of the State of South Carolina. By Samuel Henry Dickson, M. D. Charleston, 1850. (From the Author.)

Lecture, introductory to the Course, on Materia Medica and Pharmacy in the University of Pennsylvania. By Joseph Carson, M. D., Professor of Materia Medica and Pharmacy. Delivered October 10th, 1850. Published by the Class. (From the Author.)

An Introductory Address to the Class of the Medical Department of Pennsylvania College. Session 1850–51. By Washington L. Atlee, M. D. Prof. Med. Chemistry. Philadelphia, 1850. (From the Author.)

Catalogue of the Wistar or Anatomical Museum of the University of Pennsylvania. By W. E. Horner, M. D., Professor of Anatomy. Third edition. Philadelphia, 1850. (From the Author.)

An Introductory Lecture delivered at the opening of the Kentucky School of Medicine. By Samuel Annan, M. D., Prof. of Path. and Pract. of Med. Louisville, 1850. (From the Author.)

The following Journals have been received in exchange :—

The Edinburgh Medical and Surgical Journal. October, 1850.

London Medical Gazette. September, October, November, 1850.

The British and Foreign Medico-Chirurgical Review. October, 1850.

The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. October, 1850.

London Journal of Medicine. October, November, December, 1850.

Monthly Journal of Medical Science. Edited by Professors Christison, Syme, Simpson, Goodsir, and Bennett, and Drs. Maclagan and Robertson. October, November, December, 1850.

Provincial Medical and Surgical Journal. Edited by Dr. W. H. Ranking and J. H. Walsh, Esq. October, November, December, 1850.

The London Medical Examiner. October, November, 1850.

The Dublin Quarterly Journal of Medical Science. November, 1850.

Zeitschrift für die gesammte Medicin, mit besonderer Rücksicht auf Hospitalpraxis und ausländische Literatur. Herausgegeben von F. W. Oppenheim. February, March, April, 1850.

British American Medical and Physical Journal. Edited by Archibald Hall, M. D., &c. October, 1850.

The New York Medical Gazette and Journal of Health. Edited by D. Meredith Reese, M. D. October, November, December, 1850.

Northern Lancet and Gazette of Legal Medicine. Edited by Drs. F. J. D'Avignon and H. Nelson. July, November, 1850.

Boston Medical and Surgical Journal. Edited by J. V. C. Smith, M. D. October, November, December, 1850.

The Medical Examiner. Edited by F. G. Smith, M. D. October, November, December, 1850.

St. Louis Medical and Surgical Journal. Edited by Drs. Linton, Moore, McPheeters, and Johnson. July and August, 1850.

The New Hampshire Journal of Medicine. Edited by Edward H. Parker, M. D. September, October, November, December, 1850.

Southern Medical and Surgical Journal. Edited by J. P. Garvin, M. D. October, November, December, 1850.

The New York Register of Medicine and Pharmacy. Edited by C. D. Griswold, M. D. October, November, 1850.

The Western Medico-Chirurgical Journal. Edited by Drs. Sandford and Armor. October, November, 1850.

The American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by William Proctor, Jr., Prof. of Pharm. Oct. 1850.

Buffalo Medical Journal. Edited by Austin Flint. October, November, December, 1850.

The American Journal of Insanity. Published by the New York State Lunatic Asylum, Utica. October, 1850.

The Western Journal of Medicine and Surgery. Edited by Drs. L. P. Yandell and T. S. Bell. October, November, 1850.

The Western Lancet and Hospital Reporter. Edited by Drs. L. M. Lawson and G. Mendenhall. October, November, 1850.

The Ohio Medical and Surgical Journal. Edited by S. Hanbury Smith, M. D. Nov. 1850.

The St. Louis Probe. Edited by Drs. Coons and Atkinson. October, 1850.

Transylvania Medical Journal. Edited by E. L. Dudley, M. D. August, December, 1850.

The American Journal of Science and the Arts. Conducted by Professors B. Silliman, B. Silliman, Jr., and James D. Dana. November, 1850.

The North-Western Medical and Surgical Journal. Edited by Drs. Evans and Meek. November, 1850.

The American Journal of Dental Science. Edited by Chapin A. Harris, M. D., D. D. S. October, 1850.

The New Orleans Medical and Surgical Journal. Edited by A. Hester, M. D. November, 1850.

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CONTENTS

OF THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

NO. XLI. NEW SERIES.

JANUARY, 1851.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. On the Structure of the Mucous Membrane of the Human Stomach. By John Neill, M. D., Demonstrator of Anatomy in the University of Pennsylvania. (Read before the College of Physicians of Philadelphia.) [With a coloured plate.] - - - - - - - - - 13

II. Notes of cases of Phthisis Pulmonalis treated in the Pennsylvania Hospital; with remarks on Cod-Liver Oil, and its uses in Tubercular Disease. By James J. Levick, M. D., Resident Physician, Pennsylvania Hospital. - - - - - - - - - - 21

III. Extracts from the Records of the Boston Society for Medical Improvement. By Wm. W. Morland, M. D., Secretary. - - - - - 38

IV. Subclavian Aneurism successfully treated by Ligature of the left Subclavian Artery; with an account of the appearances on dissection a year afterwards. By J. Mason Warren, M. D. [Communicated to the Boston Society for Medical Improvement.] - - - - - - 53

V. Two Remarkable Cases of Abstinence. By Dr. Julius S. Taylor, of Carrollton, Montgomery Co., Ohio. (Read before the Montgomery Medical Society, November, 1850.) - - - - - - 55

VI. Observations on Typhoid Fever and its Complications, as it prevails in the town and vicinity of Mount Vernon, Indiana. By W. H. Byford, M. D. - - - - - - - - - - 61

VII. Cases in Surgery. By D. Gilbert, M. D. (of Gettysburg, Pa.), Prof. of Surgery in Med. Dept. of Penn. College, Philad. - - - - 70

VIII. Remarks on the Treatment of Cholera. By Richard McSherry, M. D., U. S. Navy. - - - - - - - - - - 76

IX. Poisoning by Corrosive Sublimate. By H. W. Williams, M. D. (Read before the Boston Society for Medical Observation, August 19, 1850.) - 79

X. A Case of a Tumour in the Bladder. By C. J. Clark, M. D., of Jacksonville, Alabama. - - - - - - - - - - 83

XI. Cases of Puerperal Convulsions. By John P. Little, M. D., Richmond, Virginia. - - - - - - - - - - - 87

XII. Notes of a case of Poisoning by Arsenic. By Benjamin W. Robinson, M. D., of Fayetteville, N. C. - - - - - - - - 91

XIII. Case of Hydrophobia. By J. Wilson, Jr., M. D. - - - - 96

XIV. General Paralysis from Abscesses in the Cerebellum. By Samuel Chamberlaine, M. D., of Philadelphia. - - - - - - 101

ART. PAGE
XV. On the Treatment of Permanent Pseudarthrosis by an Apparatus which permits the use of the Limb and obviates the necessity of Amputation. By Henry H. Smith, M. D., Surgeon to the St. Joseph's Hospital, Philadelphia. - - - - - - - - 106
XVI. Hydrocephalus cured by Hydriodate of Potass. By J. St. Julien Guerard, M. D., of Beaufort, S. C. - - - - - 109

REVIEWS.

XVII. The Transactions of the American Medical Association. Instituted 1847. Vol. III. Philadelphia, 1850. 8vo. pp. 499. - - 111
XVIII. A Dissertation upon Dislocations and Fractures of the Clavicle and Shoulder-Joint, being the Jacksonian Prize Essay for 1846. By Thomas Callaway, F. R. C. S. Demonstrator of Anatomy to Guy's Hospital, &c. &c. &c. 8vo. pp. 178: London, 1849. - - - - 127
XIX. Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Volume the Thirty-third. 8vo. pp. 360. London, 1850. - - - - - - - 141

BIBLIOGRAPHICAL NOTICES.

XX. Renal Affections, their Diagnosis and Pathology. By Charles Frick, M. D., Philadelphia: Lea and Blanchard, 1850, pp. 189, 12mo. - - 171
XXI. The Diseases of the Breast, and their Treatment. By John Birkett, Assistant Surgeon at Guy's Hospital, &c. &c. London, 1850: pp. 264, 8vo. - - - - - - - - - - 172
XXII. Mental Hygiene; or an Examination of the Intellect and Passions. Designed to show how they affect and are affected by the bodily functions, and their influence on Health and Longevity. By William Sweetser, M. D., Professor of the Theory and Practice of Medicine in Bowdoin, Castleton, and Geneva Medical Colleges, and Fellow of the American Academy of Arts and Sciences. Second edition, re-written and enlarged. 12mo. pp. 390. New York: George P. Putnam, 1850. - 176
XXIII. Household Surgery: or, Hints on Emergencies. By John F. South, one of the Surgeons to the St. Thomas's Hospital. First American from the second London edition. 12mo. pp. 280. Henry Carey Baird, Philad., 1850. - - - - - - - 177
XXIV. Statistics of the Amputations of large limbs that have been performed at the Massachusetts General Hospital, from its establishment to Jan. 1, 1850. By George Hayward, M. D., one of the Surgeons to the Hospital. Boston, 1850, pp. 15, 8vo. - - - - - 178
XXV. Summary of the Transactions of the College of Physicians of Philadelphia. From August 7th to October 1st, 1850, inclusive. Vol. III. No. 3, pp. 126, 8vo. - - - - - - - 183
XXVI. Woman; her Diseases and Remedies. A series of Letters to his Class. By Charles D. Meigs, M. D., etc. etc. Second edition, revised and enlarged. 8vo. pp. 690. Philadelphia, 1850: Lea & Blanchard. - 193
XXVII. Practical Ventilation, as applied to Public, Domestic, and Agricultural Structures, being an Elucidation of Plans and Suggestions, of easy application, for ventilating every Species of Architectural Structure, with Remarks on Heating, Construction of Fire-places, Cure of Smoky Chimneys; and an Appendix on the Ventilation of Ships, Steamboats, and Railway Carriages. By Robert Scott Burn, Engineer. London and Edinburgh, 1850. 12mo. pp. 208.
Useful Hints on Ventilation; explanatory of its Leading Principles, and designed to facilitate their Application to all kinds of Buildings. By W. Walker, Engineer. 12mo. pp. 131. London, 1850. - - - 194

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

FOREIGN INTELLIGENCE.

Anatomy and Physiology.

1. On the Structure of the Muscular Substance of the Heart. By Remak. - - - - 195
2 The Terminations of the Olfactory Nerves. By Dr. Hom. - 195
3 On the Structure and Physiological Uses of Peyer's Glands. By Ernest Brucke. - - - 195
4. Of Repair and the Imperfections or Limitations of Cure. By Dr. William Addison. - 196

Organic Chemistry.

5. On the Salts contained in Cholera Evacuations. By Dr. Guterbock. - - - - - - 198
6. Influence of Salt Diet on the Composition of the Blood. By Poggiale. - - - - - 199

Materia Medica and Pharmacy.

7. On the Action of Bromide of Potassium. By M. Huette. - 199
8. On the Therapeutical Employment of Coffee and Cafeine. By MM. Vanden-Corput and Hannon - - - - - - - 200
9. A cheap and simple article of Nourishment for Infants—Carrot Juice. By Dr. Gumprecht of Hamburg. - - - - 201
10. On the Therapeutic Properties of Cedron. By Dr. Cazentre. - 202
11. Hydro-Iodic Ether. By M. Huette. - - - - - 203
12. Preparation of Atropine by means of Chloroform. - - 203
13. Cantharidal Ether, and some Vesicant Preparations of Cantharides. - - - - - 203
14. Protection of Pills of Iodide of Iron from the Air. By M. Blancard. - - - - - 204
15. Neutral Citrate of Soda, a new Purgative suitable as a substitute for Saline Mineral Waters, the Citrate of Magnesia, Sulphate of Soda, of Potash, of Magnesia, &c. By M. Guichon. 204

Medical Pathology, Therapeutics, and Practical Medicine.

16. On the Mechanism of the Inflammatory Process. By Ernest Brucke. - - - - - - 205
17. Treatment of Typhoid Fever. By M. Becquerel, Jr. - - 207
18. Treatment of Cardiac Dropsy. By Dr. Alexander Kilgour. - 209
19. Valvular Diseases of the Heart. By Robert Hunter Semple, M.D. 213
20. Epidemic Cholera. By Dr. P. H. Williams, - - - 217
21. Epidemic Mumps at Geneva and Montpellier. By MM. Rilliet and Ressiguier. - - - 219
22. The Bronchocele of New-born Infants. By Dr. Betz. - - 221
23. Nightmare caused by Excessive Elongation of the Uvula, and cured by Excision of the Part. By M. West. - - - 222
24. Ozæna. By M. Max-Simon. - 222
25. On the Diagnosis of Tape-worm, from the character of the Nervous Symptoms induced by its presence. By M. Legendre. 223
26. Wawruch on the Causes and Symptoms of Tape-worm. - 224
27. Cod-liver Oil in Phthisis. By M. Duclos. - - - - 225
28. Inunction in Scarlatina. By Dr. Ebert. - - - - 225

Surgical Pathology and Therapeutics, and Operative Surgery.

PAGE

29. History of a successful case of Ovariotomy. By W. E. Duffin. - - - - - - - 226
30. Operations for Ovarian Disease. By Frederic Bird. - - 234
31. On the Treatment of Sprains of the Ankle. By M. Baudens. 235
32. Dislocation of the Scaphoid Bone of the Foot. By Dr. Walker. - - - - - - 237
33. Ununited Fracture of the Tibia of twenty-four years' standing, successfully treated. By R. W. Tamplin. - - - - - - 237
34. On Primary and Secondary Amputation. By Dr. Restelli - 238
35. Surgical Operations, in reference to the Employment of Chloroform. By M. Boyer. - - 238
36. Origin of the Epigastric and Obturator Arteries by a common trunk from the Internal Iliac; with an inquiry into the amount of danger occasioned by various positions of arteries in the ordinary operations for Femoral and Inguinal Hernia. By P. Redfern, M. D. - - - - 239
37. Aneurism of the Femoral Artery, Ligature of the External Iliac. By Henry Smith, Esq. - 239
38. Ligature of the Femoral Artery for Popliteal Aneurism. By James Drummond. - - 239
39. On the Employment of Forced Flexion for arresting Hemorrhage in Wounds of the Palmar Arch. By M. E. Durwell. - 239
40. On Hospital Gangrene. By Prof. Restelli. - - - - 240
41. On Dry Gangrene. By Dr. De Martini. - - - - - 241
42. On Fungous Tumour of the Rectum in Children, attended with Bloody Discharges. By M. Leclayse. - - - - 242
43. Gonorrhœa treated with Acetate of Potash. By Mr. Hilton. 242

Midwifery.

44. On the Causes of the Non-success of the Cæsarian Operation. By Dr. Roubaix. - - 243
45. Cæsarian Operation. By M. Nimmo, Esq. - - - - - 245
46. Sudden death seven hours after delivery — Air found in the Heart. By Samuel Berry, Esq. 247
47. On a Stethoscopic Sign of the Detachment of the Placenta. By M. Caillault. - - - 247
48. Researches on Human Gestation. By M. Coste. - - 247
49. Examination of the Genital Organs of a young Woman who was assassinated during Menstruation. By M. Jauzer. - 248
50. A new Japanese remedy for Sterility. By E. Williams, M.D. 249
51. Drs. Barnes and Sachs on Anæsthesia in Midwifery. - 249
52. Displacement of the Ovary. By Edward Rigby, M. D. - - - 255

Medical Jurisprudence and Toxicology.

53. Child born in the beginning of the sixth month, and reared. By Dr. W. T. T. Barker. - - 257
54. Death from Chloroform. By Dr. Aschendorf. - - - 257
55. Poisoning with Dulcamara. By Dr. Plaetschke. - - - 257

Miscellaneous.

56. On the Use of Lead in the Manufacture of Sugar. By Dr. Redwood. - - - - 258
Statistics of Poisoning. - - 258

AMERICAN INTELLIGENCE.

Original Communications.

PAGE

Relation of the Dumb-Bell Crystals to Uric Acid and Oxalate of Lime. By Charles Frick, M. D. - - - - - - 259

Iritis complicated with Amaurosis. By George W. Patterson, M. D. 260

Abnormal Relation with Inversion of the Clitoris and Urethra. By William D. Kelley, M. D. - 261

Domestic Summary.

Case of Poisoning by Bromine. By Dr. Sayre. - - - - - 262

History of the Epidemic Dengue, as it prevailed in Charleston in the summer of 1850. By S. H. Dickson, M. D. - - - - - 263

Gangrenopsis. By Prof. Dugas. - 267

Treatment of Rubeola by Inunction. By Dr. John Evans. - 267

Hydrangea Arborescens in Lithiasis. By Dr. E. W. Butler. 268

Absence of Uterus. By Dr. G. S. Crawford. - - - - - 268

Popliteal Aneurism—Ligature of the Femoral Artery, Cure. By Charles A. Pope. - - - 268

Operation for Removal of the Ovarian Tumour, by large Abdominal Section. By Prof. Alden March. - - - - - - 268

American Medical Association. - 269

Demonstrative Midwifery. - - 270

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR JANUARY 1851.

ART. I.—*On the Structure of the Mucous Membrane of the Human Stomach.* By JOHN NEILL, M. D., Demonstrator of Anatomy in the University of Pennsylvania. (Read before the College of Physicians of Philadelphia.) [With a coloured plate.]

IT is with some hesitation that we present before this College a paper containing even an intimation that anything new connected with so well studied a structure as that of the human stomach is yet to be observed or described.

Neither are we yet prepared to make the assertion that more recent and protracted examinations have brought to light any specific elementary formation not noticed before, in some disconnected way, and allied with much that is irrelevant and imaginary.

By the aid of microscopic and minute injections, we have been led to the conviction that, as a whole, the internal surface of the stomach has not been fully represented in any description or diagram. Notwithstanding all that older anatomists have written, shall we not be sustained in the statement that their views concerning this elaborate and complicated structure are confused and contradictory? And although modern authorities are more uniform, may not their uniformity be the result of the adoption of a common error?

We should state that it is not the epithelial, but the true surface of the mucous membrane of the stomach to which we wish to call attention, and the facts we shall present can be observed by any one in the preparations upon the table.

The surface of the mucous membrane presents different appearances in different portions of the stomach; this fact not having been sufficiently appreciated by observers, we consider as one of the sources of error in the ordinary descriptions of this organ. By far the larger portion exhibits various modifications of the honeycomb structure, the cells are large and polygonal in some parts,

in others, they are smaller, deeper, and rounder; the ridges between these cells are formed of one or more convoluted capillaries, and this arrangement of capillaries is particularly evident in the rugæ. (See Fig. I.) The walls of these cells or pockets are formed of a network of capillaries, which subdivides each cell into smaller ones; these cells are what are ordinarily called the orifices of gastric glands, and the subdivision in the bottom of each cell corresponds with the described orifices of tubuli. In the antrum pylori, the structure is modified, the ridges between the cells become larger, more elevated, (See Fig. II.), and as we approach the pyloric orifice, *conical villi* make their appearance; these villi are more numerous and larger towards the pyloric valve, so that fewer of the angular or polygonal cells are visible in their interstices; they are not so large as the villi of the small intestine, but in other respects their external appearances are precisely similar. (See Fig. III.) When well injected, they seem to be composed of capillaries, closely united by a basement membrane, and forming a pyramidal projection.

There may be said to be three different appearances presented by the microscopic examination of the injected capillaries of the mucous membrane of the stomach when deprived of its epithelium. First. The convexity of a large ruga will have a comparatively smooth and even appearance formed by convoluted and intertwining capillaries. Second. Any other portion excepting the antrum will exhibit cells or alveoli of different sizes and shapes, separated by ridges of various thicknesses, and these ridges are composed of capillaries arranged in the same manner as in the rugæ. Third. In the antrum pylori there are *conical villi*, and cells exist in the interstices and at their bases.

That the main point which we wish to prove may be understood in a few words, we would simply state that we consider the capillaries arranged in the form of "ridges, cells, and *villi*." The question may now arise whether this description in any manner deviates from those ordinarily given in the standard works of the day? We consider that it does, particularly with reference to the villi, the existence of which, in the stomach, we wish fully to establish by description and demonstration. It might be asked whether the term *villous* has not constantly been used with reference to the mucous membrane of the stomach? Unquestionably it has, though in a vague and loose way, as indicating a smooth, velvety surface; but not as implying a vascular, papillary projection to which the term *villus* is applied in the intestine.

To corroborate the statement, that it is generally believed that villi do not exist in the stomach, we have only to refer to recent anatomical and physiological writers on the subject. Kirkes and Paget* teach us not only that there are

* "Presents a peculiar honeycomb appearance produced by shallow polygonal depressions or cells. They are separated by highly elevated ridges, which sometimes, especially in *morbid states* of the stomach, bear minute narrow vascular processes, *that look like villi*, and have given rise to the *erroneous* supposition that the stomach has absorbing villi like those of the intestine. In the bottom of the cells are minute openings, &c., which are the orifices of perpendicular glands."—p. 165.

no villi in a healthy stomach, but that the cellular and honeycomb appearance characterizes the whole of its mucous membrane, and that the appearance is *uniform*. Neither Wilson nor Todd and Bowman speak of villi in the stomach. Carpenter* refers to "pointed processes that have been *mistaken by some anatomists* for villi."

Hassall has neither drawing nor description of gastric villi in his Microscopic Anatomy.

Horner† says "that none exist in the stomach or colon."

Quain and Sharpey‡ state "that these pointed processes may be compared to rudimentary villi, the perfect form of which only exists in the small intestine."

Harrison,§ of the Dublin Dissector, denies the existence of true villi.

Hodgkin‖ seems to be ignorant of this structure in the stomach.

Now these authorities are sufficiently numerous and authoritative to convince us that although the term *villous* has been used with reference to the stomach, yet the authors just quoted do not believe that *villi* exist in the stomach.

On the contrary, a number of other writers say that villi *do exist* in the

* "These pits are more or less circular in form, and are separated from one another by partition—like elevations of the membrane which vary in depth; and sometimes even by pointed processes *that have been mistaken by some anatomists for villi*."—p. 659.

† "The mucous coat of the alimentary canal in a healthy state, and successfully injected, appears to consist almost entirely of a cribriform intertexture of veins." "In the whole length of the intestine there is, however, every variety of shape of villi, from oblong, curved and serpentine ridges, to the laterally flattened cone standing on its base, &c. Conformably to this definition of villi, none exist either in the stomach or colon."—Vol. ii. p. 54.

‡ "It is seen to be marked throughout, but more plainly towards the pyloric extremity, with little depressions or cells, named alveoli, which have a polygonal form." "The margins of these alveoli are elevated into pointed processes, which may be compared to *rudimentary villi;* the perfect form of these appendages only existing in the small intestine, and making their appearance in the duodenum."—Part III. p. 1025.

§ "Numerous follicular papillæ, but not true villi, project, and leave between them small depressions or pits studded with minute holes; these pits are more or less circular, and are bounded and separated by the follicular elevations; they are more distinct towards the pyloric portion of the stomach; four or five foramina are seen in each: these are the orifices of the small glands and ducts that elaborate the gastric fluid, the mucous being probably furnished by the follicles."—Vol. i. p. 244.

‖ "In fact, the surface of the mucous membrane of the stomach is generally described as villous: and even Billard appears to agree with this description of it. I have at least a doubt respecting the accuracy of this statement. To me the surface of the stomach, when viewed under the circumstances which I have mentioned, appears to the naked eye by no means perfectly smooth, but of an indeterminate character, very difficult to describe." "Whilst in the *serous* membranes, the assistance of a powerful microscope enables us to distinguish delicate fibres intimately interlaced, when the *mucous* membrane of the stomach is thus examined, *I can only observe an amorphous semi-transparent* mass in which no structural texture can be distinguished."—Lect. xix. p. 270.

stomach, and give descriptions of them, though none have made drawings of them but Berres,* whose magnificent work has fallen into my hands since the artist has given the accompanying representations. With the exception of Berres, we believe no one has had the knowledge of this structure, although Bèclard† says "the villosities are nowhere more numerous than in the pyloric half of the stomach and small intestine;" and again, in a succeeding paragraph, says, "they are shorter and *less numerous in the stomach* and large intestine," and in another denies the vascularity of them. If Bèclard's injections could not exhibit the vascularity of these villi, it is hardly probable that he could have any accurate idea of the structure, for it is only by successfully executed injections that the true form of the villi can be determined. An opinion founded on no better data can hardly be more than an hypothesis, or an inference from the nature of the surface in other portions of the alimentary canal.

Such also may be considered the value of Bichat's‡ statement upon this point. He *reasons* that they exist there, because they do in other parts; his

* Anat. Microsc. Corp. Humani. Auct. Dr. Josepho Berres, Prof., &c. Vienna, 1837.

† "The villosities whose existence is very general, but which are nowhere more numerous, larger, or more apparent than in the pyloric half of the stomach, and in the small intestines, and especially in the commencement of that intestine, are eminences still finer than the papillæ."

"These villosities may with propriety be called the *radicals* of animals, are small foliaceous prolongations of the internal membrane," &c. "Were first described by Fallopius and Azelli, and have been figured by Helvetius, Lieberkuhn, Hedwig, Rudolphi, Meckel, Buerger, and others, especially in the small intestine, being shorter and less numerous in the stomach and large intestines."

"Those of the pyloric half of the stomach and duodenum are broader than long, and constitute a small lamina." "There is not perceived the vascular texture which has been described as belonging to them."—*Elem. Gen. Anat.*, Béclard, translated by Knox, 1830.

‡ The papilla of this system cannot be called in question at its origin, where it dips into the cavities, in the commencement even of these cavities, as upon the tongue, the palate, the internal part of the alæ of the nose, upon the glans penis, in the fossa navicularis, within the lips, &c. Inspection is sufficient to demonstrate them there. But it is asked if the papilla exist also in the deep-seated parts of this system. Analogy indicates it, since the sensibility is as great there as at their origin, though with varieties that we shall point out; but inspection proves it in a manner not less certain. I think the villi with which we everywhere see them covered are nothing but these papillæ. This manner of regarding them by explaining their existence generally observed upon all the mucous surfaces, appears to me to be much more conformable to the plan of nature, than to suppose them in each place with different and often opposite functions. Besides, it is difficult to decide the question by ocular observation. The delicacy of these elongations conceals their structure, even from our microscopical instruments—agents from which anatomy and physiology do not appear to me to have derived much assistance, because when we see obscurely, each sees in his own way and according to his own wishes. It is then the observation of vital properties that should especially guide us; now it is evident to judge by them, that the villi have the nature I have attributed to them."—*Bichat, Hayward's Translation*, 1822.

generalizations lead him to assert the existence of structures we fear he had never seen. He says "analogy indicates it," but "it is difficult to decide the question by ocular demonstration."

Billard, in his work on "Mucous Membranes," speaks of the stomach as possessing villi, and says, "they exist *generally* over its surface" (with which we cannot agree), although he describes them as "more numerous towards the pylorus," and that "in the healthy stomach the naked eye perceives them but indistinctly."

Huschke* seems to have appreciated the labors of Berres on this point, and admits that the pyloric portion contains villi: and Krause also speaks of "villous folds."

We thus see that even modern writers do not agree; and if this diversity of opinion exists at the present time amid the advantages which we possess, we should not be surprised at the conflicting testimony of those of older times.

Some expressions in Haller† might lead us to suppose that he had very clear evidence of the existence of villi, which he describes as "projecting into the cavity of the stomach;" he speaks also of "the inhaling veins opening in the pendulous villi."

Ruysch‡ gives a drawing from one of his minute injections, which exhibits

* Mais les cloisons interposées entre les glandes tubuleuses méritent de fixer l'attention. Sur les dentelures qui servent de limite si tranchée entre l'épithélium de l'œsophage et le commencement de l'estomac, il-y-a, suivant Berres, des papilles longues de 1-17 à 1-18 de ligne, sur 1-64 d'épaisseur, dans chacune desquelles pénètre une anse vasculaire de 1-139 de ligne. Ces papilles servent peut être à procurer une plus grande sensibilité aux points où elles existent. Dans le reste de l'estomac, les parois intermédiaires entre les orifices des glandes ne s'élèvent pas d'une manière notable, et l'estomac n'a point, par conséquent, des villosités proprement dites, quoique sa membrane muqueuse fasse le passage, par son aspect tomenteux, à celles qu'on nomme villeuses. Mais les choses changent lorsqu'on approche du pylore. Ici, non seulement le membrane muqueuse devient plus épaisse, mais encore sa surface acquiert rapidement une tout autre apparence, qui mène à la formation des villosités de duodénum. Voici comment j'ai trouvé la métamorphose. Les orifices des glandes tubuleuses s'élargissent rapidement, et leurs intervalles commencent à se soulerer, deviennent par là mobiles et flottants, et acquièrent des bords en crête de coq, c'est-à-dire pourvus de pétites points à trois dents. Pendant que ces bords s'élèvent ainsi en manière de plis ou de lames que Krause nomme *plicæ villosæ*, et auxquels il assigne 1-28 à 1-19 de ligne de hauteur, sur 1-56 à 1-28 de large, le fond des glandules tubuleuses se rapproche aussi davantage de la surface, et leur cavité tout entière est alors devenue l'intervalle entre les villosités lamelleuses. D'abord leurs parois intermédiaires sont encore tubuleuses; mais quand l'ouverture des glandes s'agrandit, elles ne tardent pas à se recourber irrégulièrement sous des formes diverses, en zig-zag, en rond, en spirale, continuent d'abord de tenir les unes aux autres par des saillies plus ou moins prononcées, et finissent par perdre entièrement ces moyens d'union; de sorte qu'alors les glandules tubuleuses se continuent les unes avec les autres à la surface, et ressemblent plus à un labyrinthe qu'à un rayon de miel ou à un réseau.—*Encyclop. Anat. Traité de Splanchnologie*, par E. Huschke. Paris, 1845.

† Haller's Physiology, vol. ii. p. 161. Lond. 1754.

‡ "Quando enim ventriculi arterias cera replevi rubrâ: posteaque in liquore idoneo ita

the surface of the stomach as consisting of regularly-formed pockets or cells. He speaks also of villi, but nevertheless confesses that his view of this arrangement was only particularly satisfactory in sheep. If he had satisfactorily injected the villi of the stomach, is it not probable that he would have given us a drawing of this structure in his work?

Fordyce says "that as far as I can judge, it seems to be nothing but cellular membrane. When the surface was moderately moist, there seemed to be a number of thin fine membranes crossing each other, so as to form a number of angular cells."

Hewson states that the whole surface of the intestinal tube is covered with villosities, but admits that in the large intestine these bodies are so short, that the surface appears smooth to the naked eye, while no true villi are detected by the microscope; only the partitions between the cells resemble villi in their structure. In the stomach a nearly identical appearance is found. "At the upper part of this organ, the villous coat appears in a microscope like a honeycomb, or like the second stomach of ruminating animals in miniature; that is, full of small cells, which have thin membranous partitions. Towards the pylorus these partitions are lengthened, so as to approach to the shape of the villi in the jejunum."*

That these opinions should have but little weight with writers and teachers at the present day, and that they should be quoted merely as elucidating the history or the literature of the subject, ought not to surprise us, when we learn that their descriptions were generally based upon observations made with the naked eye, or with instruments in which the observers had but little confidence; for both Fordyce and Bichat, although they used microscopes, expressed themselves as deriving no advantage from them. Neither are we disappointed at the want of accuracy in their descriptions, when we reflect that their comparisons were derived in a great measure from the inspection of inferior animals, and that the meaning attached to such terms as cells, alveoli, crypts, pockets, lacuna, glands, villi, papillæ, &c., is conventional, and varies

prius præparatas partes hasce macero, experior tum superficiem interiorem ventriculi et intestini jejuni tunicâ quasa quadam papillosa vestitam esse. Fateri tamen debeo, haud ita evidenter quidem in stomacho humano has papillas apparere, ut quidem in ovillo: quemadmodum hâc in figurâ expressi. Inde itaque et tanto facilius inducimur credere, et in homine ita obtinere, quum obscurius quidem similitudo accedens in homine observetur."—*Ruysch. Dec. Tert.*, p. 34 and 35, 1737.

"Voco autem hanc intestinorum tunicam villo-papillosam, quia animadverti villosam istam superficiem penitus simul esse papillosam, quemadmodum se habent interiora nostrarum Genarum in suo integumento, ut et labia oris, œsophagus, ventriculus, omniaque intestina, quum sit in his omnibus ejusdem apparatus continuata productio. Verum quidem est, in unoquoque non æque clarum id apparere; quum in Labiis genis internis, et in intestinis maltorum hominum tunica hæc papillas hasce nimis manifestas non possideat, attamen in aliis satis conspicua datur."—*Ruysch, Dec. Secunda*, p. 25 and 26.

* Dr. Sprott Boyd's article on the Structure of the Mucous Membrane of the Stomach. *Edin. Med. and Surg. Journal*, 1836.

with the different periods at which the authors above referred to have made public the results of their observations.

We ought next to inquire what is taught by the principal physiological writers of the day upon this subject, and examine the evidence upon which they base their theories, and see how far the structure they demonstrate corresponds with what we may conceive to exist.

The investigations most frequently referred to are those of Sir E. Home and Dr. Sprott Boyd, although the diagrams of Ruysch, Horner, Todd and Bowman, and Berres are far more in accordance with nature. We refer now merely to the mucous membrane, and not to its epithelial investment, which has received so much attention from Wassman, Henle, Wagner, Hassall, and others.

Sir E. Home says: "The structure upon the upper arch of the stomach which when magnified by a common lens had the appearance of glands, is shown by Mr. Bauer to be made up of cells in the form of a honeycomb; this honeycomb structure consists of cells of the greatest depth in this particular situation, but over the whole surface of the cardiac portion of the stomach the appearance is so faint as to require a great magnifying power to render it visible. In the pyloric portion the cells in general have the same appearance, but there are small clusters, the sides of which rise above the surface, giving the appearance of foliated membranes."

And Dr. Sprott Boyd agrees with him, for he says "the appearance of those cells, throughout the cardiac portion of the stomach, corresponds to the representation given of them by Sir E. Home. When the mucous membrane is extended, they appear tolerably regular both in form and size, varying from the one-two hundredth to one-three hundred and fiftieth of an inch in diameter, being smaller in the young man than in the adult subject. Towards the pylorus, the mucous membrane, which is thin throughout the great cul-de-sac of the stomach, becomes considerably thicker, the dimensions of the cells are increased, and an appearance somewhat resembling that described by Sir E. Home is perceptible. He mentions the patches distinguished by the foliated membranes as existing particularly towards the pylorus. They may be found, however, in the cardiac portion of the stomach likewise; perhaps not actually at the great extremity; but certainly opposite the termination of the œsophagus. In the engraving given by Home of these patches, the wall of each cell is represented as rising above the general surface of the stomach, and being cleft into a number, ten or a dozen, of rounded segments, which form a complete fringe about the mouth of the cell. These projections of the mucous membrane are, so far as I have been able to observe, much less numerous. There is no regular fringe, but here and there a prolongation of membrane, resembling an ordinary villus of the intestine, rises from a partition between two cells. These bodies from their small size are not easily distinguished; they give to the surface a more flocculent and velvety appearance than is presented by other parts of the stomach. The cells near the pylorus are in some cases about one one-hun-

dredth of an inch in diameter, and on examining them on a dark ground, and with the aid of a reflector and a magnifier of a quarter of an inch focus, their interior is pretty distinctly seen presenting an appearance similar to what I have presently to describe as existing in the stomach of the pig, where it is more clearly visible and more easily examined. The floor of each cell appears perforated by numerous circular openings, as if a number of tubes opened on it; and on making a vertical section of the mucous membrane, it is seen to be composed of striæ or fibres running perpendicularly from the free surface of the membrane to the cellular coat beneath."

The diagram of Dr. Boyd is the one which is usually copied into the text books of the day. Had it been made from an injected preparation, we think the nature of "cells and the circular openings perforating their floor" would have been more distinctly demonstrated. The circular openings which he considers to be the orifices of *tubule*, which he describes partly from observation, and partly from analogy in the pig's stomach, we consider to be simply the subdivisions of the cells into smaller and deeper ones by the arrangement of the blood-vessels. We have no disposition to make any innovations upon the terms "tubuli," "gastric tubes," "pyloric tubes," &c., but merely wish to show that their parietes are formed of vessels, and that they are elongated cells or alveoli.

It will be a question of great interest to determine the uses of the *Gastric Villi*. Their form and structure, and their resemblance to the intestinal villi would naturally lead us to associate them with the function of absorption, although some, perhaps, who still consider the intestinal villi to be tactile, would wish to ascribe the same character to those of the stomach. We would not imply by the application of this term *villi* that their uses are precisely similar to the villi of the intestine, that is, that they participate in the chyliferous absorption, or that their lymphatics should be called lacteals; on the contrary, we would believe that the fluid which they absorb is very different from that which has to be subjected to the influence of the bile and pancreatic juice previously to its removal from the intestine; for we have neither mesentery attached to the stomach, nor mesenteric glands for lacteals to pass through, did we suppose them originating in the villi of the pylorus. But is there no other absorption from the stomach than that of watery fluids by endosmotic action directly through the parietes of the blood-vessels? May not these villi be the special apparatus for the absorption of the solution of the albuminose compounds? Is there no nutrition except through the villi of the intestine?

EXPLANATION OF THE PLATE.

Fig. 1 exhibits the gastric cells and capillary ridges.

Fig. 2 exhibits the cells becoming deeper and the ridges becoming more elevated and pointed.

Fig. 3 exhibits the *Gastric villi*, together with gastric cells.

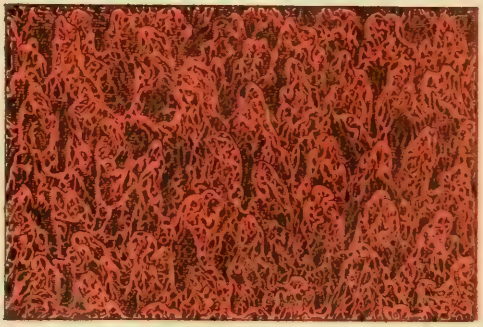
Fig. I.



Fig. II.



Fig. III.



Lith. of P.S. Duval. Phila.

ART. II.—*Notes of cases of Phthisis Pulmonalis treated in the Pennsylvania Hospital; with remarks on Cod-Liver Oil and its uses in Tubercular Disease.* By JAMES J. LEVICK, M. D., Resident Physician, Pennsylvania Hospital.

DURING the winter, spring, and the early part of the summer of this year, the medical wards of the Pennsylvania Hospital, under the care successively of Drs. Wood, Pepper and Gerhard, attending physicians, have presented a large number of interesting cases of disease. An opportunity has thus been afforded the writer, as resident physician, of noting the progress and results of these cases. From these notes, the following reports have been taken, and are now offered for publication in the hope that they may do their part towards determining the remedial value of cod-liver oil.

Although this motive has led to their publication, it was but a subordinate consideration at the time they were recorded; but to modify the history of the patient, the notice of the symptoms, and the results of the inspections, so as to have this always the prominent object, would require more time than the writer at present has at his disposal; and the reports have therefore been given almost exactly as they were made at the time, after the close of each day's duties in the wards. Where the previous history of the case has been given, it has been in very nearly the words of the patient himself, the person and tense having alone, for the most part, been changed.

CASE I.—A German, surgical instrument maker, æt. 47, dark hair, of medium height, was admitted into the hospital November 7, 1849, for chronic rheumatism. The patient was evidently of a scrofulous diathesis; had on each wrist a bursal tumour filled with cheesy substance. Had cough, with puriform expectoration.

Upon examining his chest, a small cavity was detected at the summit of the left lung. He was at once placed on the use of cod-liver oil, tablespoonful thrice daily; and iodide of potassium gr. xv daily—to have No. 4* diet, and milk and an egg in the morning. He remained in the house for sixteen weeks, and was then discharged, having gained several pounds in weight, and having a very decided diminution of his cough—the physical signs undergoing little or no change.

CASE II.—A seaman, æt. 20, with light hair, a little below the medium height, was admitted September 22, 1849, much emaciated, with cough, copious

* The following is the diet table of the hospital numerically arranged:—

No. 1. Barley water, gruel, arrowroot, sago, tapioca, rice water.

No. 2. Gruel, tea, bread, rice, molasses, mush, vegetables.

No. 3. Bread, tea, rice, molasses, mush, vegetables, soup.

No. 4. Bread, tea, chocolate, vegetables, soup, meat.

purulent expectoration, and with the physical signs of a cavity at the summit of each lung. With this patient there was great intolerance of cod-liver oil, so that after attempting its use for several days it was omitted. He resumed the oil November 16, and continued to take it until his death. After five weeks' use of the remedy there appeared to be an arrest in the progress of the disease. There was, however, no permanent improvement, and the man died four months after his admission, and after an illness of two years.

An inspection showed the existence of a cavity larger than a walnut at the summit of each lung; and numerous larger and smaller tubercles in the stage of softening scattered through the lungs.

Case III.—A seaman, æt. 21, admitted October 13, 1849. Had had cough for eight weeks—before this time had had pleurisy of the left side coming on after exposure to cold and wet. Had suffered for a long time from pain in the bowels and from diarrhœa. He was at once placed on the use of cod-liver oil fʒss ter die, and liq. morph. sulphat. fʒi ter die.

I found him in the early part of December considerably emaciated, harassed by cough, and expectorating nearly ten ounces of pus daily; with cavernous respiration, pectoriloquy and gurgling below the left clavicle, and gurgling below the right clavicle. In addition to the pulmonary affection, there was obstinate abdominal pain and diarrhœa.

Notwithstanding this condition of his bowels, the patient increased in weight, his appetite improved, and he was able to walk about the house, feeling better than at the time of his admission into the hospital. Thinking it possible that the diarrhœa might be aggravated by the use of the oil, Dr. Wood directed its omission for a short time. For a day or two following, the diarrhœa diminished; it soon returned with its former frequency; the use of the oil was resumed, but the patient had acquired a dislike to it, and it was taken with difficulty and irregularly. The cough, expectoration and diarrhœa increased, and the man died February 28, 1850.

On inspection, there was found considerable serous effusion in the left pleura; a vomica at the summit of each lung—that of the right side (the larger of the two) about the size of a hen's egg, and traversed by a band enclosing a vessel through which a fine probe was readily passed. The mesenteric glands were found tubercular; numerous small tubercles dotted the peritoneal surface of the intestine, the mucous membrane of which was found extensively ulcerated.

Case IV.—A shoemaker, æt. 24, born in Ireland, rather above the medium height, was admitted September 8, 1849. Had been well until the first of May preceding—was at that time on a frolic and took cold. From this time had had a cough, which had continued steadily to increase. Had rapidly lost flesh, but had had no hæmoptysis.

At the time of his admission the patient was very feeble, much emaciated, unable to leave his bed; with frequent cough, rigors and hectic. Percussion

dull at the summit of left lung, clear elsewhere; cavernous respiration and subcrepitant râle distinctly heard below the left clavicle. On the 10th, was ordered cod-liver oil, tablespoonful thrice daily—with occasional anodynes; No. 3 diet; increased two days later to No. 4.

30th. Had a slight hemorrhage. ℞.—Acid sulph. aromat. gtt. x t. d.; a small blister to be applied below the clavicle. These symptoms steadily continued during the first six weeks of his residence here. At the end of this time, an improvement of his appetite and with it an increase of strength began to be noticed; this was followed by a gain of flesh. Two weeks later he was able to leave his bed, though still coughing and expectorating considerably.

A gradual though somewhat variable improvement followed. He remained in the hospital about six months, steadily using the oil in the dose before mentioned. At the expiration of this time, an entire amelioration of his symptoms had taken place. He was discharged March 15, 1850, being at the time the stoutest patient in the medical ward, having scarcely any cough, no expectoration, no hectic, with his appetite and strength as good as they ever were. The physical signs at this time were obscure dulness below the left clavicle, with rude respiration at the summit of the left lung.

Case V.—Of this case I have but very imperfect notes. He was a seaman, aged forty years, who entered the hospital Sept. 10th, 1849, far advanced in consumption, with pectoriloquy, gurgling, and cavernous respiration below each clavicle. He was at once placed on the use of cod-liver oil, tablespoonful thrice daily, and a teaspoonful solution of sulphate of morphia, *pro re nata*. He continued the use of these remedies until he was discharged from the house. After a time there appeared to be a very slight improvement in his condition, but this, if real, continued for but a very limited period. He was removed at his own request, Februaray 20th, 1850, with but little hope of surviving many weeks.

Case VI.—A seaman, aged twenty-seven years, born in Prince Edward's Island, dark hair, with numerous scrofulous abscesses of neck and throat, was admitted December 21st, 1849. Five years before had a cough which lasted for two months, and was the result of exposure on the coast of England after a wreck. With this exception had had good health until March 1st, 1849. At that time had swelling of the glands of the neck and under the jaw. This continued to increase for some months, and then disappeared. Two months later reappeared, and with a cough had continued since. Was treated in the Rio Janeiro Hospital for these abscesses, remaining there for five weeks, during which time he had an attack of erysipelas; was very feeble when he left. Had never had hæmoptysis. Did not expectorate to any amount until five months before his admission, when (to use his own words) something like a boil broke in his chest, and a most abundant discharge of matter followed. Was relieved by this. Has had little or no nausea. Bowels pretty regular.

At the time of his admission was extremely ill. Countenance anxious, very feeble and emaciated, harassed by cough, and expectorating twelve ounces of pus daily. Auscultation loud; cavernous respiration, pectoriloquy and mucous gurgling after coughing, at the summit of the left lung. Cavernous respiration, slight gurgling and imperfect pectoriloquy below right clavicle. On the 28th, he was ordered cod-liver oil (with a bottle of porter daily), in the usual dose; an anodyne at night and *pro re nata*, No. 4 diet and a mutton chop daily.

January 8th. R. Infus. prun. Virginian. f℥ij t. d., and to have milk and crackers.—*29th.* Complains of great nausea and inability to take the oil; to be omitted for a few days.

February 3d. Resumed the use of the oil.—*22d.* Had a slight attack of diarrhœa, checked by an opiate.

At this time a very marked improvement in the appearance of the patient had taken place. He had lost his anxious expression of countenance, several of the scrofulous abscesses had healed, and there had been a very decided increase of his weight and strength; his appetite was good, and he was seldom in bed.

March 31st. The tonsils very much enlarged, almost preventing deglutition. To be touched with solution of nitrate of silver ℥ss to ℥j. *April 2d.* Throat much better. *10th.* Very great quantity of puriform expectoration, amounting to nearly a pint. *28th.* Had an attack of hæmoptysis. To correct this, R. Acid. sulph. gtt. x t. d.

May 14th. On a close examination of his chest to-day, I find the physical signs below the clavicle to be very much as at the time of the man's admission. At the lower part of the right thorax anteriorly there is complete flatness on percussion extending above the sixth rib, with great prominence of this part of the chest. Posteriorly on the same side, a little below the inferior angle of the scapula, there is loud amphoric respiration.

July 4th. Has complained of pain at the lower part of his right side, relieved by a blister.

Notwithstanding these evidences of an increase of the disease of the lungs, the improvement in his general health, as shown by increased weight and strength, continued, and the patient, with the infatuation of his disease, believed himself to be fast getting well. *20th.* Had a bad attack of diarrhœa, checked by anodyne enemata. *29th.* Diarrhœa returned; considerable discharge of blood from the bowels. R. Opii pulv. gr. ss q. q. h. Has much nausea and vomiting with total inability to retain the oil. Pulse very feeble. R. Vini rubr. f℥vi daily. This bowel complaint continued with increased violence, resisting all treatment, the number of discharges amounting to sixty daily. Under the exhausting effect of these the patient rapidly sank, and died August 27, 1850. The inspection was made twenty-four hours after death, with the following results:—

Exterior.—Emaciation moderate; numerous cicatrices of old abscesses on neck and throat.

Thorax.—Slight adhesions of left pleura; adherent in the whole extent of right side. Third rib carious, and pieces of it torn away in removing the lung. A large cavity found at the summit of each lung. A little below and exterior to the root of the right lung there was a cavity larger than a hen's egg; a smaller one was found a short distance below this. A small cavity was found near the centre of the left lung; numerous larger and smaller tubercles diffused through each lung.

Abdomen.—The liver was enormously enlarged, to nearly three times its natural size. The gall-bladder adherent to the intestine. A larger and smaller spleen. Several large ulcerations found in the great intestine. Tubercular deposits in Peyer's glands. The mesenteric glands much diseased, and containing numerous tubercular deposits. The inner surface of the sigmoid flexure appeared to be a continuous ulcer. No further examination was made.

Case VII.—A wool-sorter, æt. thirty-two, born in Wales, with light hair and fair complexion, was admitted February 9th, 1850. Had been in good health until the preceding September. Had been exposed to the damp and cold while working in a new building, the windows being unglazed. First had cough, followed by chills and sweats; had had no hæmoptysis. At the time of his admission had dulness at the summit of right lung, loud bronchial respiration below the right clavicle and slight subcrepitant râle below the left; much emaciated, great anxiety of countenance, and expectorating about four ounces of muco-purulent matter daily; bowels constipated. 10*th.* Ordered of solution of sulphate of morphia f℥j ter die; cod-liver oil f℥ss thrice daily; to take an occasional cathartic. Diet No. 3, to be gradually increased.

March 13*th.* Had been pretty comfortable during the last three weeks. Thinks he took cold two days ago, since which time he has had severe pain in the lower part of his right lung. For this was dry-cupped. To-day has purulent expectoration (about ten ounces), which, he says, seems to come from the lower part of his lungs. On a close examination of his chest to day, I find, besides the signs noted before, amphoric respiration with metallic tinkling two inches below the left nipple. 17*th.* Pulse frequent and feeble, much dyspnœa. R. Vini alb. f℥vi daily.

This debility and dyspnœa continued for several days; added to which were the continuance of copious purulent expectoration and increasing evidences of pneumothorax, the latter being followed by a slight attack of pleurisy.

April 5*th.* Feels better to-day than he has done for a long time. Has (notwithstanding this) very violent action of the heart, and an unusually anxious countenance. Gurgling distinctly heard below the inferior angle of the left scapula. In very much this condition the patient remained until April 29th, using the remedies above mentioned. That an increase of the local disease took place there was no doubt. I could not observe any decided improvement in his general appearance, though the man was very positive such was the case, feeling, he said, much brighter and stronger than he was at the time of his

admission. Contrary to our judgment he determined to return to Wales, and was discharged at his request for that purpose April 29th, 1850.

Case VIII.—A seaman, æt. thirty-eight, born in United States, dark hair, sallow complexion. This patient entered the hospital September 25th, 1850, with pneumonia of the right lung slightly involving the left lung. He was too ill at the time of his admission to give any account of himself; the following was subsequently learned. That during the last year he had always had a cough after the slightest exposure to cold. Had never had hæmoptysis: did not know that any of his family had had consumption, but recollected that his father had a cough for a long time; had been in the habit of drinking freely. Had attended to his work until a week before his admission. At that time had a chill followed by fever, &c. Had had more or less pain in his liver for nearly five years; had an attack of pleurisy many years ago. At the time of his admission was suffering much from partial dyspnœa, pulse frequent and feeble. There was no reason to suspect the existence of tubercles, the patient having all the signs of pneumonia in its second stage. Percussion dull on the right side posteriorly; tubal respiration and crepitant râle. Expectoration rusty and tenacious; no delirium; countenance expressive of great distress.

The application of a few cups to the back of the chest followed on the succeeding day by a blister was the only depletion resorted to, the patient's asthenic condition forbidding any more active treatment. For two days he used small portions of calomel and opium; it was soon found necessary to omit these and to substitute ammoniæ carb. gr. iij; senegæ syr. f℥ss q. t. h.; brandy punch tablespoonful every hour. Good diet.

Under this treatment the urgent signs of the disease abated and the patient though very feeble, was deemed convalescent.

March 17*th.* Pulse rather more feeble; has no appetite; coughs very much, and expectorates largely (nearly twelve ounces) of muco-purulent matter. ℞. Tr. cinchon. comp. f℥j, *q. q. h.* To have a bottle of porter, oysters, eggs and chicken. 18*th.* Much more comfortable. 19*th.* Very much troubled by diarrhœa. Ordered an enema of sixty drops of laudanum. 21*st.* Crepitant râle still heard though coarser. While auscultating this morning, thought I could hear indistinct gurgling, about two inches below the inferior angle of the scapula, as if there might be a deep-seated abscess of the lung, corresponding with that point. Cough troublesome; uses solution of sulphate of morphia f℥j at night. Has less bowel complaint. 23*d.* Diarrhœa has returned; omit the syrup of senega, which with the carbonate of ammonia he has continued to take occasionally. 31*st.* Very much jaundiced this morning: no other change.

April 11*th.*—Sat up to-day; vesicular murmur more distinctly heard to-day than at any previous time since his admission. The marked evidences of disease at the lower and posterior part of the lung had led us to neglect a close observation of its upper portion. On a closer examination of this at this

time, there was found comparatively healthy respiration at the summit of the left lung, but, on the right side dulness on percussion extending from the clavicle to the third rib; cavernous respiration and gurgling below the right clavicle. Cough very troublesome, expectorates large quantities of puriform matter. R. Ol. jecoris aselli f℥ss ter die. R. Potass iodid. gr. v ter die.

24*th.* Has had several attacks of diarrhœa. Thinking this might be increased by the oil, it was omitted, and a mixture of chalk and kino ordered, which has diminished though it has not entirely checked the bowel complaint.

May 11*th.* Debility increased; has resumed the use of the oil, omitting it when there has been an increase of diarrhœa. Takes essence of beef in addition to his other remedies. 24*th.* Pulse and voice very feeble. To-day has rude respiration at the summit of the left lung posteriorly, sub-crepitant râle, and loud bronchophony at lower part of right lung posteriorly; with the signs before noted. Has been obliged to omit the oil on account of a threatened attack of diarrhœa. Complains very much of his throat, which he says feels entirely raw—for this is using alum and conserve of roses. 31*st.* Has continued to grow weaker, and died to day at 8 o'clock P. M. The autopsy was made twelve hours after death.

Exterior.—Rigidity incomplete, emaciation extreme, a large cicatrix on the left leg, the remains of an old ulcer.

Neck.—Larynx and trachea tuberculous and ulcerated in their whole length. Posterior portion most affected: this ulceration appeared to extend for a short distance into the right bronchus.

Thorax.—Firm pleuritic adhesion; pleura thickened and studded with numerous small tubercles. Summit of the left lung indurated with tubercles. Tubercles scattered throughout the lung. Along the outer side of this lung were found myriads of minute tubercles resembling the roe of fish in their number and arrangement. Bronchial glands near the root of the lung very much enlarged and containing a cheesy substance. The two lobes adherent; base of the lung adherent to the diaphragm. The right lung at its summit adherent to the chest; immediately below this a vomica as large as a duck's egg. Crossing this cavity were several bands, which seem to be the remains of vessels, the surrounding tissue having been destroyed. About an inch and a half above the base of the lung was found a large abscess, deeply-seated and full of most fetid pus. Numerous tubercles in its vicinity. Pleural surface of the pericardium thickened, adherent to the left lung, requiring dissection to separate it. On its internal surface it was firmly adherent to the heart by a false membrane about a line in thickness. When separated, this presented a beautifully tufted or papillary appearance, closely resembling the tongue of a bullock. The membrane having been closely examined, was found covered with minute tubercles. The size of the heart natural or nearly so; flaccid; a slight coagulum in the right ventricle; the cardiac valves, and the aorta and its valves healthy.

Abdomen.—Liver usual size, of a pinkish hue externally. Its surface cor-

rugated as if by cicatrices; these did not extend into the substance of the gland; this appeared to be healthy. Gall-bladder nearly full of bile. At the apex of the gall-bladder on its external surface a small tubercle existed. Spleen natural size, its exterior surface white from old exudation. Throughout this viscus were found small white round depositions of a bony hardness, about the size of a pin's head. These might perhaps be called bony tubercles, but from their consistence and the integrity of the tissue in their immediate vicinity could scarcely be considered identical in character with those found elsewhere. Stomach, inner surface softened, and of a variable red colour; miliary tubercles found on its greater curvature, and covering both the large and small intestines. Numerous ulcerations apparently of tubercular origin in both large and small intestines. Mesenteric glands enlarged, and containing tuberculous matter. A few, though not all of them, in the softening stage. Left kidney contained one tubercle; right kidney healthy. The ureters and bladder were not closely examined.

Case IX.—A shoemaker, æt. 50, born in Ireland, married, of sober habits, was admitted February 13, 1850. Seven years before had influenza, since which time he had always had cough in the morning; though not amounting to anything serious. Gave up work in the early part of August 1849, on account of a shortness of breath and oppression about the chest, which he attributed to exposure to wet while working in a dye-house. After this, went to the sea-side, where he became much worse. From this time his cough increased, with expectoration, amounting to nearly half a pint of matter mixed with blood, daily; suffered much from exhausting night sweats. Had been much troubled with costiveness, sour stomach and want of appetite.

At the time of his admission, in addition to his dyspeptic symptoms he had a pale and anxious countenance, was harassed by cough and copious night sweats, followed by hectic fever and accompanied with entire inability to sleep. The physical signs were, loud amphoric respiration below the right clavicle with occasional mucous gurgling; bronchial respiration at summit of left lung posteriorly, with faint crackling. Percussion obscurely dull below the left clavicle, very marked *bruit de pot fêlé* a slight distance below the right clavicle; copious purulent expectoration. The evidences thus afforded of an enormous cavity were very decisive. He was ordered to take cod-liver oil in the usual dose, and a cough mixture, each dose containing equal parts of solution of sulphate of morphia and of syrup of senega four times daily. To have milk and No. 4 diet.

These symptoms continued, with but little amelioration, for nearly five weeks; at the end of which time my attention was called by both nurse and patient to his improved appetite, and on my own part to the absence of the anxiety of countenance with which the man entered the hospital. This was gradually followed by a diminution of cough and of expectoration, by marked increase of flesh and strength and by the entire disappearance of hectic.

He remained in the house until May 20, 1850, fourteen weeks; and was

discharged at his own request, to return to his work, believing himself to be perfectly well: the physical signs having undergone no other change than the disappearance of a mucous râle which had been occasionally heard below the right clavicle. For many weeks before his dismissal he had entirely ceased to complain of any dyspeptic symptom with the exception of occasional constipation.

September 25th. This man called at the hospital to day, looking even better than when he left us. He has continued to use the oil, and asserts that he is perfectly well. The amphoric respiration and *bruit de pot fêlé* still very marked.

Case X.—A seaman, æt. 22, born in United States, entered the hospital March 16, 1850; of medium height, light hair. Three years before, had a hemorrhage from the lungs, and lost about six ounces of pure fluid blood. Did not suffer any serious inconvenience from this. Had had a slight cough for nearly two years, but not sufficient to seriously annoy him, until about two months before his admission. Within the last two months had suffered much from cough and obstinate diarrhœa. Had been troubled with pain in the region of the kidneys for a long time. The bowel complaint commenced about two months before he came here. At first had three or four passages daily, subsequently the number was very much increased, occurring as often as every second hour. Had lost twenty-eight pounds in weight during the last four months. Both parents alive and well.

17*th.* Patient feeble, and much emaciated. Coarse mucous rales below the right clavicle, and crackling in left subclavicular region. Percussion dull or nearly so for two inches below the left clavicle. Expectoration very slight. Was ordered cod-liver oil, tablespoonful thrice daily, and, to quiet his cough, a mixture of sulphate of morphia and tolu.

Rest and the supine position were for a few days enjoined, and were followed by a diminution of his diarrhœa. On the 22d, there was a return of diarrhœa, and he had eight discharges. To correct this, acet. opii, gtt. v four times daily, were prescribed. 24*th.* Complains very much of pain in the abdomen and of sick stomach. Omit the morphia and tolu, and increase acet. opii to eight drops every third hour. 27*th.* Diarrhœa continues. ℞. Cupri. sulphat. gr. ½, opii pulv. gr. ½ 4 t. d. ℞. Acet. opii gtt. viij ter die. 28*th.* Diarrhœa diminished to once in twenty-four hours, but is nauseated after taking the pills, which are to be temporarily omitted. 30*th.* Very feeble. ℞. Vini rubr. f℥vj daily; two passages to-day. 31*st.* ℞. Bismuth subnit. gr. x ter die.

April 1st. Four passages in last twenty-four hours. ℞. Bismuth subnit. gr. xx 4 t. d.

5*th.* Cough very troublesome; is unable to sleep after 2 o'clock A. M. without an additional opiate. Has an occasional anodyne enema. The oil has now been omitted for a few days; finding no diminution in the number

of discharges, its use is to-day resumed. 14*th.* For a few days has had four discharges daily; pulse very feeble, but as from the beginning has very little expectoration. 30*th.* Very feeble, and becoming daily more emaciated; bowels moved three times daily. His debility rapidly increased, and the man died, May 2d, 1850. The autopsy was made twenty-four hours after death, with the following results.

Exterior.—Emaciation extreme.

Thorax.—Old pleuritic adhesions; a small cavity at the summit of each lung; left lung adherent at its summit to the rib, torn by its removal from the thorax. Other parts of the lung found to contain numerous small miliary tubercles.

Abdomen.—Liver healthy, gall-bladder empty. Spleen usual size but soft. Abdominal peritoneum healthy; intestinal peritoneum covered with tubercles of all sizes, and almost innumerable. Mesenteric glands enlarged and tuberculous. Intestines both large and small containing numerous ulcerations apparently of tubercular origin. One tubercle found in the right kidney.

Case XI.—A carver and gilder, æt. 19, medium height, light hair, delicate complexion, born in Ireland, was admitted March 9th, 1850. When a lad, had a swelling of the submaxilliary glands; with this exception had had good health until August 1849. First had cough and sweats during the night; had had but little expectoration. Bowels regular for the most part, though a little inclining to costiveness. Six weeks before his admission, had a very slight hæmoptysis coming on after a violent attack of coughing. Was not aware that any of his relations had had consumption; attributed his illness to sudden exposure to cold after working in a hot room. Did not give up work until four weeks before he came here.

At the time of his admission, emaciation considerable, but by no means extreme, great lividity of fingers; rigors and hectic daily. Sub-crepitant râle under left clavicle, with circumscribed dulness at the summit of left lung. On the 10th was ordered cod-liver oil, tablespoonful three times daily. Pil. ferri. carb. gr. v. ter die. No. 4 diet.

This patient remained in the hospital four weeks without any improvement in his condition, while he continued to suffer from increased rigors and hectic. About six weeks after his admission there appeared to be a slight improvement in his appetite and strength. The following note was taken: *April* 25*th.* Distinct crackling heard under each clavicle after coughing, loud bronchial (almost cavernous) respiration below the right clavicle.

May 14*th.* During the last fortnight, has complained very much of pain in the abdomen and of bowel complaint; this last has been checked by anodyne enemata.

At this time, a very marked change had taken place in the appearance and condition of the patient. He was discharged at his own request, to go in the country, May 18th, 1850; having gained greatly in flesh and strength,

weighing within a pound of his weight previous to the commencement of his illness. His master, who had not seen him since his admission until this time, was very much surprised at his improved appearance. Notwithstanding this unequivocal improvement in the general symptoms, there has been a steady increase of the local disease as shown by the physical signs.

Oct. 1*st.* Have to day heard of this patient. He continued to improve for about two months after his dismissal from the hospital. Used the oil, though irregularly. In the early part of September, had an increase of his symptoms after exposure to the damp and cold. A week or two after left for Ireland, where he arrived safely, and was living at last accounts.

Case XII.—A servant girl, æt. 20, born in Ireland, rather above the medium height, with light brown hair, was admitted July 28th, 1849. This patient did not come under my notice until December 25th, five months after her admission. At that time she gave the following history of herself. Three years before, had hurt her side while lifting a heavy weight. Pain in her side had continued for a long time: was treated for liver complaint, but was not salivated. During this time was able to attend to her work, though feeling very weak and languid. Had had but little cough until April 1849. Attributed this to exposure to the damp and cold after sunset. During the month of May, frequently had chills followed by fever. No other member of her immediate family had had consumption, but two maternal aunts died of this disease. Had had several slight attacks of hæmoptysis.

She was admitted into the hospital merely as an act of charity, being thought too ill to send out of the house, but with little hope of surviving many weeks. Was at first ordered infus. prun. Virginian. Oj daily. Vallet's carbonate of iron, gr. v. ter die, and an anodyne. *Nov.* 6*th.* ℞. Ol. jecoris aselli, f ℥ss ter die. No. 4 diet and milk, &c. The following is a note of her condition in the latter part of December.

Amphoric respiration with metallic tinkling two inches below the left clavicle; very loud bronchial (almost cavernous) respiration below the right clavicle. Has hectic, exhausting night sweats, rigors, chronic laryngitis, with almost complete aphonia. Has recently had frequent attacks of diarrhœa, which are temporarily checked by acet. opii gtt. v. q.q. h. Is unpleasantly affected by sulphate of morphia, but not by black drop. Has frequent attacks of intense pain in the head, relieved by the application of a mixture of chloroform and camphor.

March 6*th*, 1850. Up to this date has taken cod-liver oil, though at first with much difficulty, using at that time the dark-coloured oil. I am assured by the gentlemen under whose care she has been, that although there has been little or no marked improvement in the local disease, yet that the disease has made little or no progress since her admission, and they are decided in the belief that this may be safely attributed to the use of the oil.

April 5*th.* Pulse very feeble; complains of pains in her chest and abdo-

men. Sputa nummular as before, but somewhat bloody. Bowels moved four times in the last twenty-four hours. 24*th*. Great dyspnœa and diarrhœa. To correct this last, astringents and anodyne enemata have been used in vain. 26*th*. Great dyspnœa and universal malaise. Continued to grow feebler and died, May 3d, 1850. Permission for an autopsy was positively refused.

Case XIII.—A servant girl, æt. 15, born in Ireland, short stature, with dark hair and eyes, had been four years in this country, was admitted November 9th, 1849. Had been ill for eighteen months. First had intermittent fever (?) (living in a malarious district), which continued for five weeks and was followed by cough and hæmoptysis. After this had a greenish-yellow expectoration, and lost flesh rapidly. Her mother is said to have consumption; her paternal grandmother died of this disease. [The note of the physical signs at the time of her entrance has been mislaid; they were those which positively indicated the existence of a tubercular cavity at the summit of the right lung.]

Was at once placed on the use of cod-liver oil in the usual dose. At first took the dark-coloured oil, subsequently the pale oil. At first took it alone, but became nauseated; took it without difficulty in the foam of porter. The patient used the oil for about four weeks before any improvement could be perceived. About a week later, had less pain in her side and less dyspnœa, and thought herself a little stronger than before. In two months time found that she was growing fatter. She continued steadily to improve until her dismissal, and was discharged at her own request, January 22d, 1850, being at that time of full face, as strong as she ever had been, having no cough or expectoration, bowels regular, and able to attend to her usual work, the physical signs being cavernous respiration and a peculiar *clicking* sound at the summit of the right lung. In reply to a question on the subject, she states she could not perceive that the oil had any effect on her bowels. She also states that she could take the medicine more readily immediately before meals than at any other time.

August 31*st*. The patient called here to-day. Is in very much the condition that she was when she left here. Has continued to take the oil as directed.

Case XIV.—A servant girl, æt. 18, born in United States, of scrofulous appearance, with light hair and of medium height, was admitted December 11th, 1849. Gives the following account of herself. Had had sore eyes (scrofulous ophthalmia) for a long time; with this exception had been in pretty good health until four months before her admission. At that time had her feet wet, and took cold; this was followed by cough, which has continued to grow worse. Coughed until she vomited, after walking but a short distance. Had loss of appetite; two months after her cough commenced, began to spit freely of yellow matter. Had never had much pain in her chest; had had no hæmoptysis; bowels regular, but had not menstruated for nearly six months. Had rapidly lost flesh; had chills and fever (hectic) every day. Had shortness of breath, espe-

cially in the evening; and during the night exhausting sweats. Had been under no medical treatment. Both parents died of consumption.

At the time of her admission these symptoms just enumerated existed in their full force. The physical signs were, bronchial respiration below each clavicle, most marked on the left side; slight dulness on percussion, and subcrepitant râle at the summit of the left lung.

The patient was directed to take cod-liver oil f℥ii ter die (the dark oil), but was unable to retain it. It was omitted, and infus. prun. Virgin. f℥ii t. d. was substituted; was also ordered a cough mixture.

For six weeks these symptoms continued; at the end of this time she resumed the oil in the infusion of wild-cherry bark, but was unable to continue its use on account of its obstinately nauseating effect. It was again omitted. The light oil was then given in the foam of porter, but owing to her great aversion to it, the patient did not at first take more than a tablespoonful daily. A fortnight later she was able to take it in the usual dose. Its use was continued for two months before any positive benefit was perceived either by the patient or by her physicians. The first change noticed was the disappearance of hectic fever; gradually the cough diminished, an improvement of the appetite took place, and, she states, after three months time she found herself rapidly gaining flesh.

June 20th, 1850. She has taken her medicine regularly up to this date, and now requests to be discharged; says she feels perfectly well, has little or no cough, no night sweats, no expectoration, no thoracic pain, sleeps well, has good appetite, and is regular, both with her bowels and catamenia. So far as we can judge from the rational symptoms, this patient should be pronounced perfectly well; but the improvement in the physical signs is very far from coinciding with these, for we now have obscure dulness below the left clavicle, with rude respiration and subcrepitant râle. Loud bronchial respiration, amounting almost to cavernous, and very distinct subcrepitant râle at the summit of the left lung—showing in fact rather an increase of the local disease, while there has been so marked an improvement in the general health. She is anxious to return to her home, and is this day discharged.

Remarks.—If we look over these reports, we shall find that in Case I., of whose history it will be seen I have but imperfect notes, the result was what will frequently be found to occur, though to a greater extent than in this man, namely, an increase in weight and strength, while no change takes place in the local disease.

In Case II. the disease had so far advanced as to give us no hope for improvement, yet the progress of the disease appears to have been arrested for a time, though but for a time. This case as well as others confirmed an observation made to the writer by an eminent physician of Baltimore, that although up to a certain period the oil may prove beneficial, yet that there is a time in the advanced stages of the disease in which it ceases to have any appreciable

effect whatever. In such cases we have temporarily omitted and then resumed its use. If this insensibility continue, it has been thought both unnecessary and injurious to urge its further use.

Case III. illustrates a fact of some importance, namely, that the oil in some instances may be given, even though diarrhœa exist; and that patients may fatten and gain strength under its use even with this additional drain on their constitution. This too was an instance of life prolonged apparently by the use of the remedy.

Case IV. is a most striking instance of the happy effects which sometimes result from the use of the oil. Cough, emaciation, debility, &c., all successively disappearing while using this medicine, and this medicine alone. With this man there was, too, a decided improvement of the local disease, as shown by the physical signs. Case V. is but an analogue of the second case reported. Case VI. is an instance of what has been alluded to, the very marked improvement in the general health and strength under circumstances the most unpromising. It is indeed difficult to imagine a more discouraging case than this presented at the time of admission; yet this patient's life was prolonged for nine months, and was lost at last by a disease to a certain extent connected with his tubercular diathesis, yet not properly by the pulmonary affection.

The results of the autopsy may perhaps call attention to a remark made by Dr. Williams on the increased size of the liver during the use of cod-liver oil. The following are the words alluded to: "I have in numerous instances remarked that the bulk of the liver (as determined by percussion) becomes augmented during its use, yet without tenderness, or any other sign of disease."* Now we find that during life this increased bulk was noticed and abundantly shown by the inspection. A single case proves but little, but taken in connection with other observations may perhaps lead to some conclusions on the subject of the mode in which cod-liver oil operates. It is well known to pathologists that an augmentation in the volume of this organ is one of the most frequent attendants of phthisis pulmonalis. Louis found it to occur in forty out of a hundred cases. Opportunities for making inspections of phthisical subjects are frequently afforded at the hospital, but in no instance which has come under the writer's notice has there been an increase so evident during life, or so marked on the post-mortem examination as this case presented.

In Case VII. there was little or no evidence of any good following the exhibition of the oil. The patient was very positive in an opposite belief, but this infatuation is by no means uncommon; certain it is that very rapid progress was made by the local disease notwithstanding that the oil was steadily taken.

In Case VIII., so far as the oil is concerned, little can be learned, as the patient took it but for a short time and irregularly, and at the same time was using active tonics. This was the only case in which the diarrhœa seemed in-

* London Journal of Medicine, January 1849, p. 16.

creased by the use of the oil. It was however thought at the time that any liquid not positively astringent would by its bulk alone, in the man's condition, have produced a similar result. The results of the inspection have been given in full as a striking instance of almost universal tuberculosis, coinciding with the well-known fact that pneumonia *occurring in a tubercular diathesis* may frequently be followed by phthisis.

The result in Case XI. was most gratifying. The age of the patient, the advanced stage of the disease, and the great size of the cavern, gave little hope of amelioration much less of recovery; yet under treatment the results mentioned in the report followed, and the man is at this time engaged at his daily labour. The disappearance of his dyspeptic symptoms while using cod-liver oil cannot, I think, authorize us to consider the oil an anti-dyspeptic any more than the return of the menses in Case XIV. would justify us in calling it an emmenagogue. To the improved general health and strength must each of these results be ascribed. Case X. is an instance in which the oil as well as the other remedies used proved utterly impotent. We would of course suspect that in those cases where the tubercular disease is so universal, the remedies used would be less beneficial than if the disease were limited to one organ. With him there certainly was no good derived from the use of cod-liver oil; nor was there on the other hand any increase of diarrhœa following its exhibition. Case XI. is another instance of the fattening and strengthening properties of the oil, and another instance of non-increase of diarrhœa from its use. Case XII. is imperfect from the absence of a post-mortem examination; in other respects it corresponds with the third case reported. Cases XIII. and XIV. are both instances of very happy effects following the use of the oil. Case XIV., too, shows the propriety of not laying aside the oil from any aversion, however decided, which the patient at first may have to it; it also encourages its protracted use, even though it may have been taken for a long time without any appreciable benefit.

The question now very naturally arises, Have the results of the cases under treatment in the hospital been such as to authorize the statement that cod-liver oil will cure pulmonary consumption? I regret to state they have not. Certainly the cases reported do not warrant an affirmative reply, and they, though but a part of those under care, faithfully indicate the average result. We certainly have had no case of pulmonary consumption, unequivocally marked, in which all the evidences of disease, as shown by the rational symptoms and *by the physical signs*, have disappeared. The nearest approach to this is Case IV. which is the patient referred to in the third edition of Dr. Gerhard's work on *Diseases of the Chest*, p. 238. Even here, although there appears to have been a very marked improvement in the physical signs, the evidences of local disease were not entirely removed, and the patient cannot be said to have been perfectly cured. On the other hand, it will be seen that in all the cases reported the disease was in an advanced stage. In six of the number, the physical signs were those of a cavity in each lung. In each of

six others a cavity existed in one lung, while in the remaining two the disease had advanced to the stage of softening. Under ordinary treatment, little or no happy result could have been expected; yet we find that of this number in five the disease, though terminating fatally, appeared to be for a time arrested; and that there was in these a decided though temporary increase of strength. One patient left the hospital somewhat improved, and five were so much benefited as to be able to return to their former occupations, believing themselves to be well; and so far as the rational symptoms were concerned, really so; while but in two instances do we find an entire insusceptibility to any good influence of the remedy.

And here I cannot avoid the remark, now fortunately almost supererogatory, that a knowledge of physical diagnosis is of the utmost importance in all cases of thoracic disease. Without such knowledge, five cases above alluded to would have been pronounced entirely well. This too may lead us to suspect that, in some (of course, not nearly all) of the cases reported in the journals as complete recoveries, this test has been neglected.

We have used, in the hospital, two kinds of oil, the pale and the brown oil. My own impression is that of these two the genuine pale oil is preferable; not that it is more efficacious, but that it is equally so, while it is much less offensive than the brown oil. Certain it is that there are patients who can take the pale oil without difficulty whose stomachs have steadily rejected the darker kind. In all the cases here reported, the pale oil has been used during a greater part of the treatment. A distinction should be made between the pale oil as obtained in that state from the fresh liver of the fish and much of that sold in our markets as pale oil, which is really the brown oil decolourized. As will be seen hereafter, this latter is thought to have been injured by the process required to effect this change. If the vender of the pale oil can be depended upon, this should certainly be preferred; if not, it would be safest to purchase the dark oil, which, from its cheapness, offers no inducement for adulteration, and which is always the oil of genuine though of old and too often of putrid livers.

We have generally allowed our patients to choose their own vehicle and time for taking the oil, attention being given that the entire amount prescribed was each day taken. It has been generally taken in the foam of porter, though a few patients preferred to take it in milk; by the majority, it was taken immediately before meals, but by a few it was most easily taken an hour after meals.

Being desirous of obtaining some information on the mode of preparation of the oil used in this country, and to ascertain if it corresponded with that employed in Europe, the writer addressed a number of questions to a gentleman residing near Boston, who, for thirty years, has been largely engaged in the preparation and sale of cod-liver (or, as during a greater part of that time it has been known, of tanners') oil. The following passages are taken

from the reply. These statements, which can be relied on, will be found to be very similar to those given by De Jongh in his treatise on cod-liver oil.

"In preparing cod-liver oil for medicinal purposes, the livers should be selected from healthy fish, and used immediately after the fish are caught. We use the water-bath, by having double kettles, holding from fifty to sixty gallons each. The livers should be washed clean, and put in the kettles whole, and heat applied. The oil thus obtained should be taken from the kettles in an hour, or an hour and a half, and strained through a fine cloth. Another filtering is needed after it has cooled off."

"The oil thus obtained is the pale oil; the heat used should not be above 180° (Fahrenheit)."

"The livers vary very much in quality at different seasons of the year. At this time (November 12th, 1850), they are very fat; one hundred pounds of livers will yield forty pounds of oil. They will yield about this proportion until January; after that, they will begin to grow poor, and will continue so until April or May, when they will yield scarcely any oil, though the fish seem at this time to be as thrifty as at any other season."

"The livers of the cod-fish require considerable sorting, as there is quite a number of diseased ones among them."

"In obtaining the dark-coloured oil, the livers are thrown into casks, holding from three to six barrels each, standing in the sun. By this exposure to sun and air, the red color is obtained. This oil is from one to three months in making."

"The dark-coloured oil *can be made light* by a process of bleaching with an alkali, which we consider destroys all the good properties of the oil."

"When the pale oil becomes of a certain age, say from six to twelve months old, the properties of the oil become so much impaired that sulphuric acid will not produce the pink or red colour in any way.

"In regard to the oils sold as cod-liver oil, I should judge, from the quantity of oil sold and for sale, that not more than one-quarter part is genuine cod-liver oil. Our best livers are obtained near Lynn, Mass."

"We consider the best method of testing the oil to be, to take a small vial half full of the oil, add say one-eighth part of nitric acid, shake it well together; if it turns a handsome orange colour, and remains so for thirty minutes or more, it is a test for *pure* oil; but, if it turns quite dark, it may be suspected that other oils are mixed with it."

The writer adds that he has known it to be used medicinally, by those engaged in its preparation, for nearly thirty years.

If I mistake not, it is highly important that the real value of this remedy should be soon determined. Exaggerated impressions of its worth have no doubt been made, to be followed by their necessary disappointments. All the results promised by some writers from it have certainly not followed its use in the hospital, nor in a large number of cases in private practice, which, through the kindness of his medical friends, the writer has had an opportunity of closely watching. On the other hand, we can positively say that most of our patients, while using the oil, have increased in flesh, in weight, and in strength; that with most of them there has been a diminution of cough and of expectoration; that with some of them hectic and rigors have entirely disappeared; and that there have been some so benefited as to be able to resume their former occupations. We can also understand that it may so

strengthen the patient as to enable him to make use of those hygienic means which are so efficacious; that it may thus, perhaps, indirectly cure consumption. Again, in phthisis, as the local affection is but a part of the disease, if the general health continue to improve, we may hope the diathesis will be, in the course of time, thoroughly changed, and thus, perhaps, cod-liver oil may cure consumption. But these suppositions are merely such; the assertion of its good, but limited, effects are positive. The first may happen, the last have happened.

An objection has recently been made to the use of cod-liver oil that it produces pulmonary congestion and hemorrhage. This is a plausible suggestion; we have not found it to exist in practice. The only instance in which an attack of bleeding could be positively traced to the use of the oil was that of a patient admitted for hæmoptysis, who, after having been in the house for several weeks, with great improvement of his hemorrhagic symptoms, was placed on the use of the oil from some suspicious physical signs. Nausea and emesis were produced by the oil, and a hemorrhage followed the act of vomiting. This may suggest a caution under similar circumstances.

It will be seen that in no instance did any decided benefit arise from the oil until it had been used for at least four weeks; it is equally important to observe that to be of any permanent benefit its use must be persisted in for a long time, even after the most striking symptoms of the disease have in great measure disappeared; a fact of which we have always endeavoured to impress the importance on our patients at the time of their dismissal from the hospital.

Although then, in conclusion, our experience has not been quite so gratifying as has that of some others, yet the writer is fully prepared to say that he believes cod-liver oil to be by far the best remedy for phthisis pulmonalis of which we have at this time any knowledge; and that to neglect its use in cases of this disease, unless there be a strong contra-indication, is, under existing circumstances, both injudicious and culpable.

Pennsylvania Hospital, *November* 13, 1850.

Art. III.—*Extracts from the Records of the Boston Society for Medical Improvement.* By Wm. W. Morland, M. D, Secretary.

July 22.—*Acute Laryngitis complicated with Inflammation of the submucous Cellular Tissue of the Trachea.* Dr. Buckminster Brown reported the case.—The patient was a labouring man, forty-five years of age. Was called to him March 28th. On the Tuesday previous, he had been all day exposed to a heavy snow storm, while at work on one of the wharves. The snow penetrated between his coat collar and neck, so that the sides of his

neck and throat were kept cold and wet throughout the day. At night he had a severe chill, and had a succession of chills and rigors until morning. It was impossible to warm him; he had had a cough all winter, and this still troubled him. When first seen by me, which was not until Thursday eve. he was suffering from extreme pain in the right side of his neck, extending from the angle of the jaw down to the sternum, shoulder and chest. There was an evident swelling from the lower edge of the maxillary bone to the clavicle. This part was very sensitive to the touch. He was purged by calomel and jalap, and a mustard plaster applied to the throat. This afforded very considerable relief, and in the course of the next day, the pain left this side of the throat, and attacked the opposite. Here the suffering and tenderness were also very great, and the respiration became affected. Leeches were applied, the mustard plaster repeated, and in the course of the disease, the patient was bled, but without relief. The patient was seen by Dr. Francis H. Gray and Dr. J. B. Brown. Respiration was now very laboured, and accompanied by a groan at each effort. Pulse 92. Percussion was good all over the chest. When told to take a full inspiration, the respiratory murmur throughout was perfect, but the moment the voluntary exertion ceased the patient seemed much exhausted, and sank into a dose. Not the least sound could then be heard; respiration appeared to be entirely suspended, and it was evident that no appreciable amount of air was admitted into the lungs. This was of itself sufficient to point out the seat of the disease. This phenomenon was so striking that it forcibly reminded me of the similar effect which would be produced by a paralysis of the involuntary muscles of respiration, the lungs being expanded only when the voluntary muscles were called into action.

On the 4th day of my attendance, I discovered an ulceration of the left tonsil; this was the first visible sign of disease on the inside of the throat. There had been, on previous examinations, but slight indications of inflammation existing about the fauces. He expectorated a considerable quantity of thick, viscid mucus, and some pus. Both sides were now greatly swollen externally. Deglutition neither obstructed, nor greatly painful; could swallow pills without difficulty.

On the 5th, all the symptoms aggravated, countenance expressing extreme anxiety, pulse 160, fluttering, irregular. Died at 10 A.M.

Post-mortem examination at 9 next morning. The lungs, heart, and all the organs contained within the chest and abdomen, perfectly healthy. In dissection, there was found intense inflammation over the whole internal surface of the larynx and trachea, with some effusion of lymph.

Sept. 9.—*Carcinoma of large Intestine; opening into the Jejunum.*—Dr. Jackson reported the case, of which he had recently made the examination.—The patient was a man 63 years of age, and had been under the care of Dr. Jeffries for about four months; having been ailing somewhat for a short time before. When first seen, he had a large knobbed tumor below the left hypo-

chondrium, which was probably owing to fecal accumulation in the colon; this gradually diminished, and for the last six weeks was not felt. Great pain, with dejections; tenesmus; and towards the last, discharges of blood, with vomiting of the same. Complete anorexia for some time before death. Patient confined to his room from the first of his sickness, and to his bed for about six weeks; becoming much reduced, and extremely emaciated. Case diagnosticated by Dr. Jeffries as one of cancer of the intestine.

On dissection, a diseased mass was found, about as large as the fist, at the angle which the arch of the colon makes with the descending portion; the entire calibre of the intestine being destroyed to the extent of four or five inches, and presenting upon the inner surface an exceedingly irregular, foul, blackish surface. In the midst of this last, and insulated, as it were, was a portion of perfectly healthy intestine, more than three inches in length, and towards two inches in width; the edges only being diseased; from the development of the valvulæ conniventes, this was seen to be a portion of the small intestine. Externally the jejunum adhered, just beyond the mesocolon, to the diseased colon, and it appeared like an ordinary though very close adhesion; yet nearly or quite one-half of the calibre of the small intestine was destroyed to the extent to which it adhered. The foul cavity, then, above referred to, had a free opening, above and below, from the small as well as from the large intestine. About this cavity was a considerable quantity of soft, crumbling encephaloid substance, not perfectly opaque, but having some resemblance to a decayed pear. The other organs were quite healthy. Dr J. remarked upon these local, circumscribed, carcinomatous affections, not merely in the rectum but along the course of the colon, as of not very rare occurrence.

Sept. 9.—*Tracheotomy for Œdema of the Glottis.*—Dr. S. Parkman had recently performed this operation, on a man thirty-two years of age, who reported that he had been suffering from dyspnœa for seven weeks. On his entrance into the hospital, the dyspnœa and dysphagia were extreme; most of the fluids attempted to be swallowed returning through the nostrils. The fauces presented extensive cicatrices of syphilitic ulceration, which had destroyed the pendulous palate and the pillars of the isthmus. By the finger the epiglottis was felt swollen, and there was a sensation as if it were ulcerated. In the front of the larynx there was a small abscess discharging pus. There being no relief from the remedies employed, of which cauterization with nitrate of silver was the most active, and death appearing imminent, tracheotomy was performed, and a tube inserted. The relief was immediate, and the patient at once fell asleep, and remained so for eight or ten hours. The relief was not permanent, and the patient died with symptoms of pneumonia of both lungs, on the second day after the operation. The larynx, examined after death, presented some œdema, but the cause of the dyspnœa was seen in the thickening of the epiglottis and the edges of the glottis, from long inflammation. There was pneumonia of both lower lobes.

Sept. 23.—*Melanosis of the Eyeball.* Case reported by Dr. Bethune.—The patient, a gardener, thirty-six years of age, had enjoyed good health till within sixteen months. After being wet on one occasion, was attacked with pain through left eye and back of head, with redness and soreness of the organ. This continued from time to time gradually affecting the sight. No vision for six months. Six months ago the ball gave way and began to swell. This has constantly increased from that time. Right eye well. The globe of left eye disorganized and projecting between lids, of the size of a small apple; red, firm, and covered at lower part with dry, everted conjunctiva lining lower lid, at points thick and loose; around inner edge of orbit, above and below is felt a firm irregular mass.

The specimen, after removal, presented the following appearances—an ovoid mass somewhat knobbed upon the surface, as is usual in this disease. An incision having been made through the mass antero-posteriorly, it measured upon the cut surface, in this direction, a trifle over one and three-quarter inches, and, transversely, one and a quarter inches. The outline of the globe of the eye upon this surface was perfectly distinct, the sclerotic coat upon one side being entire and in appearance sufficiently healthy; upon the opposite side this tunic had disappeared, but the outline of the globe was not the less defined. Form of the globe altered, though there was no enlargement; cavity completely filled by a uniform black, melanotic mass; nothing seen of the lens nor anterior chamber; a trace of the cornea, however, was observable. Immediately external to the globe was a large mass exactly resembling that which fills the globe itself. The remainder of the diseased mass, constituting a majority of the whole, varied much in color; a part of it consisting of a uniform, close, compact white structure without any trace of discoloration, by far the greater part, however, being more or less gray and passing almost gradually into black; the consistence of this colored portion also being rather firm, or at least solid; these differently colored portions showed no tendency to intermix, but seemed almost composed of distinct globules. No fat within the mass, and none of the usual appearances of encephaloid.

By the growth of the mass within the orbit, the eye was pushed forward, so that the distance from the posterior extremity of the tumor to that of the globe of the eye measured one and a quarter inches, and this would be the extent to which the optic nerve, if it any longer existed, would have been drawn out. The incision was carried through what seemed to have been the course of the nerve, but the latter as such could nowhere be distinctly seen.

Dr. Bethune remarked that this was the third case of melanosis and fifth of cancerous disease of the eye in which he had operated. This was the youngest patient he had seen with the disease.

Sept. 23.—*Case of an Affection of the Olfactory Nerve, with total loss of Smell and Taste; with remarks upon the probable identity of these two senses.* Read before the Society by Dr. Kneeland.—The patient was an American woman

æt. forty-seven, married, and the mother of several children; of strictly temperate habits; has worked hard all her life, but has generally enjoyed excellent health. From a child has been subject to pain in the præcordial region, accompanied with dyspnœa and palpitations, for which her physician ordered her to smoke tobacco, which habit she has at the present time.

In February, 1848, she lived in a damp cellar in Southac St., where I saw her, suffering apparently from mere debility and fatigue from too hard work; she took no medicine; removal to a better room and a little wine soon restored her. Just before her removal, she, with the rest of the family, partook freely of very gross food, which made them all sick; after free vomiting they all recovered. She remarked to me that nothing ever tasted better to her in her life than that meal; but from that day to the present, a period of two and a half years, she has never had the slightest sense of smell or taste (properly so-called).

From her complaining chiefly of loss of taste, I examined the branches of the fifth pair of nerves in the order of their distribution, expecting to find the lingual nerve, the so-called special nerve of taste, principally affected.

Motion of all parts of the face and mouth was perfect. The fifth pair going to the eyes, nose, ears, and tongue, has more or less influence on the senses connected with these organs. But the sensation of the globe of the eye and eyelids was perfect; no dryness of conjunctivæ and no inflammation of the eye. No symptoms to indicate any affection of the ophthalmic branch of the fifth pair.

There was no dryness of the pituitary membrane; common sensation of the nose perfect, both internally and externally; a foreign body, snuff, &c., excites sneezing as in any one else. Still she cannot in the least perceive the strongest odours, as ether, aqua ammoniæ; these cause an unpleasant sensation, a tickling or a burning, but no sensation of smell; she cannot distinguish ammonia from water except by the general sensation of the membrane, so that here the fifth nerve is not at fault, but the olfactory nerve.

Hearing unaffected; sensation of ear perfect. In the tongue, from tip to base, common sensation unaffected; also on gums and whole buccal cavity; motion of tongue perfect; gums sound; deglutition unaffected. No sense of taste in any portion of tongue, at tip or base; can distinguish between cold and hot drinks; can tell greasy substances by the slippery feeling, but cannot distinguish butter from lard or tallow; can tell salt from sugar by the different sensations produced; cannot distinguish molasses from honey; and cannot taste the smoke of her pipe.

Sensation of face everywhere perfect.

From these negative symptoms, and the fact that tactile sensibility in the whole of the tongue is perfect, it is evident that the fifth pair of nerves is unaffected, and that the whole trouble must be referred to the olfactory nerve.

Here is proof enough that the sense of taste is in a great measure equivalent to the sense of smell. By simply holding the nose and preventing the en-

trance of air by it, sapid substances applied to the tongue are no more tasted than they were by this patient. Thus I found that I could not distinguish the highest flavored perfumes from simple alcohol or ether, when applied to the tongue, when the nose was closed; laudanum and paregoric were the same; the poorest cake was as agreeable as the richest; but all the odour, or what is generally called taste, was immediately perceived on allowing air to pass through the nose. To all intents and purposes, any one can thus destroy his sense of taste at will.

Thinking that smoking might have in part caused the affection of the olfactory nerve, she left it off, though with no relief; she had never passed the smoke through her nose, and she had never taken snuff.

About two years after the commencement of this affection, she had a most violent attack of hysteria, simulating almost every disease, consequent, I think, on the disorder of the system usually attending the cessation of the menstrual function. No particular treatment was directed to the organ of smell, except a single application of electro-magnetism.

I have been led from the above case to the conclusions that there is no *special* nerve of taste; that all our perception of the *flavour* of substances applied to the tongue is due to the sense of smell and the action of the olfactory nerve; that what has been called *taste*, perceived on the anterior part of the tongue by the lingual nerve, and on the posterior part by the glosso-pharyngeal, is nothing but a general sensation of the same nature as ordinary touch.

That the lingual branch of the trifacial nerve has no title to the appellation of "gustatory nerve" any more than has the glosso-pharyngeal; and that neither of these has any more to do with the sense of *taste* than have the branches of the fifth pair, which give ordinary sensation to the nose with the sense of *smell*.

That division of the lingual and glosso-pharyngeal nerves impairs the sense of taste by destroying the general sensation of the mucous membrane, just as division of the fifth pair impairs the sense of smell by affecting the sensibility, secretion, and nutrition of the Schneiderian membrane. Finally, that the olfactory nerve is the nerve of smell and taste, while the lingual and glosso-pharyngeal nerves are nerves of common sensation of the tongue, as far as taste is concerned.

It has been objected to this conclusion that taste accompanies a congenital absence of smell, and that acute taste sometimes exists in persons deprived of smell. In the case alluded to, there was complete loss of smell and complete loss of taste as far as the *flavour* of bodies was concerned; the power of distinguishing hot from cold, acid from sweet, &c., was thought to be owing to the fact that the common sensibility of the tongue, depending on the lingual branch of the fifth pair, was unaffected.

Experiments of physiologists are quite contradictory in this matter of the nerve of taste. Panizza pretends that the hypoglossal and lingual nerves

may be divided, destroying the motions and sensibility of the tongue, while taste remains; and that section of the glosso-pharyngeal totally destroys taste, without affecting motion or sensibility.

Boerhaave ascribes taste to the hypoglossal nerve; Charles Bell and Magendie to the lingual. Others have placed it in the lingual and glosso-pharyngeal, the former presiding over the anterior, the latter over the posterior portion; some have limited it in one place, some in another. If authority were to carry the day, the glosso-pharyngeal, supplying the base of the tongue, where taste is strongest, has more claims to be called *gustatory* nerve than has the lingual.

The common sensibility of the tongue enables us to perceive many qualities of bodies, which combined, and acting on an organ highly acute, naturally or from education, may produce impressions easily mistaken for *true taste*, which perceives the *flavour* of bodies: thus, heat and cold, consistency, form, size, chemical and mechanical action of bodies, are perceived by the common *touch* of the tongue. It is no *special sense* of taste which acts here, but a peculiar modification of *common touch*, to suit the structure and use of the tongue. We see examples in the following, which no one will call special sense, or anything but a variety of ordinary sensibility. We have in the ends of the fingers a delicacy and peculiarity of touch existing in no other part of the body; yet no *special* sense. This is still more remarkable in the flying membrane of the bat, whose sensibility supplies the deficiency of diurnal vision; yet no special sense. The glans penis is the seat of peculiar sensations, but has no special sense. The sensation of being tickled is another modification of common sensibility existing in parts where touch is very dull. If these modifications of common sensibility are found without special nerves, there is no difficulty in comprehending that the tongue may also be the seat of a similar modification, without invoking the aid of a *special sense*, or calling its lingual nerve of common sensation the *gustatory* nerve; and no difficulty in allowing that the only special nerve concerned in *taste*, or the perception of flavours, is the *olfactory* nerve.

Destroy the first pair of nerves, and the Schneiderian membrane is still sensible to irritating vapours by the sensory branches of the fifth pair; and at the same time, the tongue is sensible to similar irritants, by the lingual branch of the fifth pair, while the flavour of bodies is no longer perceived. Now, as careful an experimenter as Magendie maintained that the sense of smell resided in the branches of the fifth pair, because common sensation remained after destruction of the first pair; may it not be, then, that the so-called case or cases in which taste is said to exist where the sense of smell is lost, are in reality only examples of the remaining *common sensibility* depending on the fifth pair, and not of *true taste*. If it be said that the sensations are too acute to be referred to common sensation, it may be replied that, as the common sensation in the ends of the blind man's fingers may be so educated as to enable him to distinguish even the *colors* of bodies (without the necessity of supposing an eye in the finger's end), so the common sensation of the tongue,

in a person deprived of smell and taste, may be so educated as to perceive many qualities of bodies imperceptible by common tongues, and so allow him what he may consider an acute taste, without the necessity of supposing a special sense of taste in his lingual nerves: the blind man's fingers perceive no light, yet they recognize the property of a surface which will reflect one ray, while it absorbs all the rest, thus enabling him to distinguish colors; the tongue, in the absence of smell, perceives not the sapid qualities of bodies, yet by experience can connect (perhaps involuntarily, and in spite of the individual) certain irritating or other properties with substances known to possess corresponding flavours; the former has, to all intents and purposes, *sight;* the latter *taste.* Some cases of alleged existence of taste with loss of smell may depend on obstruction to the entrance of air by the nose, anteriorly, by polypus or other tumours, &c., while odours from the mouth, or the flavour of food, may be normally perceived by a sound olfactory nerve, as taste is the strongest at the base of the tongue, where odours readily can reach the nose. In cases of *congenital* anosmia, we have no standard of comparison which will enable us to judge of the acuteness of taste; never having had the sense of smell, or the perception of flavours, the common sensibility of the tongue can alone be brought into play; whether such individuals have taste, as those do who can smell, neither they nor we can determine.

There is no reason to believe that the sense of smell is of less consequence to man than it is to animals, in the choice of food. It is the fineness of the sense of smell in carnivorous fishes, reptiles, birds, and beasts, which guides them in their choice of food; even savage man, more exposed than his civilized brother, has the sense of smell uncommonly acute; animals distinguish by their nose, and man by his tongue, the qualities of food fit for them; but both by the olfactory nerve. The ruminantia and rodentia, peculiarly exposed to noxious plants as food, have, in the greatest perfection, an organ connected with the nose, which is wanting in man; this is the glandular organ described by Jacobson, situated on the floor of the nostrils, communicating with the mouth, and freely supplied by branches of the first pair; this, according to Cuvier, enables them to distinguish by *smell* the poisonous properties of plants.

Allowing that taste is smell, and depends on the first pair of nerves, we can easily understand why the tongue should be supplied by the lingual and the glosso-pharyngeal nerves. Man, savage or civilized, is liable to eat many things, whose odour might be agreeable, and yet which might prove hurtful. The lingual nerve, therefore, is especially acute, and ministers to a peculiar modification of common sensibility, which rejects substances improper in temperature, consistence, and chemical or irritating qualities; while it is the office of the glosso-pharyngeal to guard the entrance to the œsophagus, and, by a reflex action, to cause the rejection by vomiting of any improper substances which the lingual nerve (and the olfactory nerve, even) may have allowed to pass.

It may here be also remarked that physiology furnishes no instance of the dependence of two senses upon one and the same nerve.

In fine, I must still express the opinion that the above case is strongly in favour of the physiological doctrine, that what is usually called *taste*, or the perception of the *flavour* of bodies, is in reality *smell;* that the *lingual* nerve, which supplies common sensation, auxiliary but not necessary to taste, does not convey *gustatory* impressions to the nervous centre; that these last are conveyed by the olfactory nerve.

Sept. 23.—*Carcinoma of Right Lung with symptoms resembling those of Hydrothorax.* Case reported by Dr. STORER.—Mr. S. aged thirty-nine, entered Massachusetts General Hospital Sept. 11th, 1850. From the history communicated at entrance, it was supposed that disease of the heart had existed for several years, and that an attack of pleurisy, which he had last spring, while residing in New York, had resulted in extensive hydrothorax of right chest.

There was dulness on percussion in lower two-thirds of right chest, with absence of respiration in same. Increased resonance on percussion in left chest; sonorous râle; impulse of heart rather increased.

While in hospital he had more or less cough, accompanied by slight expectoration of adhesive mucus. Constantly suffered more or less from dyspnœa, which obliged him to remain at times upright in bed. Respiration varied from 20 to 40 per minute. Pulse ranged from 120 to 140, generally small, feeble and at times intermitting. Renal secretion constantly scanty, though by analysis healthy.

He died on the 21st September.

Upon examination of the body after death, the following appearances were observed:—

Heart.—A slight thickening of mitral value, hardly sufficient to amount to disease.

Lungs.—Nothing abnormal in left lung. Right lung uniformly adherent to pleura and diaphragm by tolerably firm adhesions.

On incision, an encephaloid mass was found, which occupied rather more than the lower two-thirds of lung. The upper third was perfectly healthy, excepting about one inch in thickness adjacent to the diseased mass, where pneumonia evidently existed, the lung being gray and infiltrated with white lymph or pus. The disease was very strongly marked, having a suety appearance, and its limits were very sharply defined. Its upper portion was hard; in other portions where it had softened, small cavities existed, filled with fluid matter; on its edges were found spots of hardened lung, being a sort of granulated lymph or tuberculated matter. In right primary bronchus, disease had extended upon the inside within half an inch of bifurcation of trachea, reducing the bronchus to one-half its ordinary size, and the cartilaginous ridges on its cut edge were seen to be embedded in the encephaloid matter. A large mass existed behind the trachea in the cellular membrane which invests the trachea and larger ves-

sels. In the midst of the disease were found several hardened glands, much enlarged and infiltrated with encephaloid matter.

No disease discovered in other organs.

Dr. BETHUNE alluded to a similar case which came under the care of Dr. Hayward a few years since. The patient had a cancerous testicle, which was removed by Dr. H., and after death, which occurred some time after, one-half or more of the right lung was found in a state of encephaloid disease.

Sept. 23.—*Poisoning by Corrosive Sublimate. Death on the* 11th *day.*—Case reported by Dr. COALE.—Sunday, July 14th, 1850, called to Mr. J. D. H——, at 8½ P. M.

Found him with pain in limbs, headache, furred tongue, excited pulse, costive. Prescribed submuriat. hydrargyri gr. x.

Monday, July 15*th.* Called at 12 P. M. Was told that a mistake had been made by the apothecary, who had sent 10 grs. of corrosive sublimate. It had been mixed and partially swallowed, but the great distress it caused produced ejection of much of it from the stomach. By advice of apothecary, warm water had been given. Dr. Flint had been sent for and arrived soon after, and administered the usual remedy of white of egg. He remained with Mr. H. for some time, until he felt it safe to leave, and called again in the morning. I found Mr. H. vomiting a clear fluid like water, mixed with fresh blood, and suffering much pain in the region of the stomach. Taking it for granted that Dr. Flint in his two visits had administered all the antidotes required, I took measures to combat the immediate symptoms occasioned by the corrosiveness of the poison, giving twenty drops of laudanum and recommending ice cream. In the evening, found the vomiting had ceased and the patient very comfortable.

Tuesday, July 16*th.* Called early in the morning to Mr. H., who had had a violent hiccough nearly all night; recommended sulph. ether; visited him about 9 A. M. Hiccough returned at every attempt to swallow fluid. Patient otherwise comfortable. Pulse a little excited. Skin moderately cool. Tongue coated. Bowels not moved. For the hiccough, prescribed musk. Gave magnesia for the bowels.

Wednesday, July 17*th.* Hiccough still troublesome. Eruption of variola appearing. Magnesia had acted well. Tongue still coated. Skin cool. Pulse 80, regular. Blister to nape, to remedy hiccough. No other treatment.

Thursday, July 18*th.* Night tolerably good; hiccough ceased. Eruption more decided; promises to be thick about the head and around the nose. No fever; tongue cleaner. Had vomited once before breakfast; the matter was of a very dark brownish colour. I thought without doubt it was blood; demulcents and opiates prescribed; the latter only if necessary. In afternoon found him at a distant part of the room, sitting with a basin before him in the act of vomiting. He said it was only caused by the fluid meeting the wind in the

stomach; vomited matter free from blood. This was the only vomiting since the morning.

Friday, July 19th. Felt better he thought; skin cool; tongue clean; pulse 80; vomited once just after taking breakfast; but no blood; some bile with the ingesta.

Saturday, July 20th. Vomited four times; complains of exhaustion; pulse 76; skin very cool; tongue clean. Eruption going through its regular stages; thick on the head and confluent, in several instances to the extent of five or six pustules; comparatively little on the body; nose much swelled and uncomfortable from the number of pustules on and around it; treatment, ice and demulcent drinks, with opiates at night.

Sunday, July 21st. Has vomited six times in the last twenty-four hours, rather copiously; the ejecta tinged with black bloody matter, mixed with some bile. Complains of an intense distress through chest when swallowing and at other times; skin very cool, almost unnaturally so; pulse 76, regular; tongue clean. No urine has been voided since the last Sunday, one week; no distress connected with this symptom; mind perfectly clear, though he wanders much in sleep; very restless both sleeping and awake; treatment continued.

Monday, July 22d. Symptoms unaltered; strength not remarkably less; eruption beginning, irregularly and partially, to dry.

Tuesday, July 23d. Vomiting more frequent; strength perceptibly diminished, restless; skin unnaturally cold; tongue clean; pulse 76; distress through chest increased; no sore throat; no pain in abdomen; no tenderness on pressure; no urine passed; bowels evacuated; discharges very black, thin; others thin but not unhealthy.

In afternoon no improvement. Feeling uneasy about him, saw him again at 10 P. M.; found vomiting not abated; prescribed olive oil and mucilage, with opiates.

Wednesday, July 24th. Symptoms not altered except increased in severity, especially the agony in the chest; strength evidently failing; requested consultation with Dr. Bigelow. Met him at 1 P. M.; treatment not altered; in evening some apparently slight alteration of symptoms.

Thursday, July 25th. Had only vomited once since last night; distress still unabated; other symptoms much as before; a slight improvement in his appearance.

Called in the evening at about 5¾, found him dead.

Post-mortem examination at 8.

Some portions of the epithelium of the œsophagus were found removed, but Dr. J. B. S. Jackson thought that no importance could be attached to this.

The prominent point of interest in the case was the length of life after taking the poison. The entire suppression of urine; the cleanness of the tongue; the coldness of the skin; the absence of fever; of tenderness over the epigastrium, of frequency of pulse, also of any appreciable lesion after death.

Oct. 14.—*Poisoning by Corrosive Sublimate. Death on the* 13*th day.* Case read by Dr. JACKSON, observed by Dr. CHAPLIN, of Cambridgeport, having occurred ten years ago.—The patient was a married woman, twenty-five years old, who took one teaspoonful of corrosive sublimate with laudanum, for a suicidal purpose. She took the poison at about eleven o'clock A. M., and was found at about one, in the privy, vomiting and purging, with constant retching. There was pain in epigastrium, and a sense of burning and smarting in the throat. The symptoms continued gradually improving for four days, when she became able to keep down drinks, and was sufficiently comfortable. Continued confined to her bed for about a week, and Dr. C. thought she would recover; took farinaceous food, pulse 40, weak, bore pressure on epigastrium. On the eleventh day, she became worse; there being distress and restlessness; no return of vomiting, but some looseness of bowels with pus in dejections. Sank, and died on the 13th day. There was never any fever; was very pale, cool, with a look of prostration. Did not complain of debility till after the week of relief, i. e., the eleventh day. Condition of urine not noted. No autopsy allowed. The quantity of poison taken was, according to apothecary, sufficient for a pint of rum to be used as bed-bug poison.

Dr. C. E. WARE remarked that he had seen a case of poisoning by this substance, in which dysentery came on after the disappearance of the primary symptoms, causing the death of the patient on about the fifteenth day.

Oct. 14.—*Fracture of the first Lumbar Vertebra.* Case reported by Dr. H. J. BIGELOW.—A female, nineteen years of age, had, in the latter part of May, jumped from the second story window of a house, a height of twenty feet from the ground, alighting upon the nates. She was at once rendered paralytic in the lower extremities, losing all power of action, and all sensation, with complete paralysis of both sphincters. Upon examination, there was evident projection of the lower dorsal vertebræ.

At the expiration of a fortnight she recovered somewhat the power of retaining the discharges, while sensation partially returned in the limbs; yet, by the end of the succeeding week, when sensation was natural, there was no ability to move the legs.

Another marked symptom, from the first, was pain in and below the knees, excessive at toes. The bowels were constipated; while catharsis produced by medicine caused great pain, followed by prostration.

In September, the patient could move the right limb considerably, but had lost flesh. At about this time was attacked with diarrhœa; which could not be easily restrained by remedies. This continued, together with great occasional pain in the abdomen, extending sometimes to the præcordial region, and probably partly due to the lesion of the vertebra, until death.

During the month of December, the patient was attacked with pain under the left clavicle and left shoulder, and accompanied with the usual physical signs of tubercular deposit; and from this time she gradually failed; the cough

increasing and loose, night sweats supervening, emaciation progressive, diarrhœa continuous, attended with pain in the abdomen; appetite well; the pain in the legs occasionally severe.

The local sensation seemed to be natural, but the power of motion not increased in the legs. The patient died in February, about eight and a half months from the occurrence of the accident.

Autopsy twelve hours after death.—Head not examined. In *left lung* were found three or four large cavities; and miliary tubercles existed in the upper part, and throughout *right lung*. *Heart* normal. Scattered throughout mucous coat of *small* intestine were patches of inflammation varying in length from half an inch to an inch. Several small ulcerations were found near its commencement, and a single tubercle of the size of a small pea. In *large* intestine, from ileo-cœcal valve to descending colon, mucous coat highly injected, abnormally thickened and rugous. From cœcal valve to a distance of twelve inches, nearly the whole surface was in a state of ulceration. *Liver* slightly fatty; *other organs* normal.

On examining the spine, the body of the first lumbar vertebra was found to be completely crushed anteriorly, so that the adjacent vertebræ came together at their anterior edge, giving rise to considerable antero-posterior curvature and protrusion of the spinous process. The body of the same vertebra was thrust backwards in fragments upon the spinal cord, compressing it, and obliterating the canal in half its diameter. The abdominal periphery of this vertebra was also surrounded with a ring of callus, of about the thickness of a quill, and which served as a sort of splint to the adjacent vertebra. The last dorsal vertebra presented upon its superior and inferior surfaces a split or crack of a T shape, completely traversing its substance; while the second lumbar vertebra was slightly chipped upon the upper and posterior concave edge of its body.

Oct. 14.—*Extirpation of a Horn from the forehead of a woman aged eighty-two years, with a description of the case by the operating surgeon*, Dr. Soubervielle, of Paris.—Dr. J. B. S. Jackson exhibited the wax model, belonging to the College Cabinet, of the head of a woman with a horny excrescence, from eight to nine inches in length, growing from the forehead. A model of this peculiar case is to be found in several other museums of the country. The following is a description of the case as given by Dr. Soubervielle, the operating surgeon.

"Madam Dimanche, widow, aged eighty-two years, laundress, living in the rue de Bercy, Faubourg St. Antoine, noticed, six years since, a small wart upon the forehead, just above the right eyebrow. This excrescence gradually became elongated and enlarged at its base, the skin over its summit having a dry, earthy appearance. As this vegetation developed, it presented a corneous appearance, and at the end of six years from the time it was first observed it presented the appearance of a ram's horn, being at least twenty-five centi-

metres in length, from three to five centimetres in diameter, and curved in its lower two-fifths, having a blackish-brown aspect, being deeply striated lengthwise, and of considerable weight. Its tissue was dry and brittle. One of the members of the Royal Academy of Medicine in handling it with too little care broke off its point, the interior appearing solid, compact, and its tissue corneous.

"The base of the horn was implanted in the skin of the forehead, which there presented a small circular neck, the tumour having nothing in common with the frontal bone. This circumstance rendered the weight of the horn extremely fatiguing to the patient, who, to obviate this inconvenience, had constructed a linen case, in the form of the tumour, which was encased within it, the base of the sheath being fastened to her night-cap band.

"I performed the operation of extirpation by making a circular incision around the base of the tumour, and raising from it the portion of skin adherent to it. There was no arterial hemorrhage. I covered the wound with a bit of agaric and it healed readily, almost without suppuration.

"A curious fact in connection with this case is that this patient had previously had a tumour of the same nature just above the thumb, which was removed by Dr. P——. She had also at the time of the last operation an excrescence from four to five centimetres in diameter, and of the length of the little finger, attached to one of the cheeks by a narrow pedicle, and which she removed herself."

Paris, March 12th, 1845.

Oct. 8.—*Gangrene of Appendix Vermiformis. Hardened Fæces found in its cavity.* Case reported by Dr. Storer.—The patient was a boy twelve years old, under the care of Dr. Cutter. Was taken on Friday, Oct. 16th, with symptoms of peritonitis. Dr. Storer saw the case in consultation on Friday last. He was lying on his back, with the knees drawn up, suffering from extreme pain in region of umbilicus, and from dyspnœa; with great tenderness over the whole region of abdomen. Had had no operation since Sunday. The patient died on Friday, the day of Dr. Storer's visit, after one week's illness. On examination after death, there was found gangrene of the appendix cœci, and, contained within its cavity an oblong, oval mass of hardened fæces with *several short pieces of hair running through it;* no perforation had taken place. There was general peritonitis, with a purulent deposition in the cavity of the pelvis. The omentum was very purple and also that portion of the peritoneum that lines the external walls of the abdomen. The fæcal matter contained in the appendix was quite hard, and in layers, compared by Dr. Cutter to some calculi he had seen.

Dr. Bigelow remarked, that two questions naturally suggested themselves in regard to these cases; 1st, why certain foreign bodies should in some instances find their way into this cavity, and not in others; and 2dly, why such bodies should, in certain cases, produce inflammation of the part, while

in others they remain for years in this cavity, without producing any morbid results.

Dr. B. alluded to two cases, in one of which, two calculi were found in the appendix, which must have been there for a considerable time before the inflammation came on, which proved fatal to the patient. The other was the case of an eminent physician who died at an advanced age, and in whose appendix were found a large number of shot which had been accumulating there for years, without being followed by any morbid consequences.

Oct. 28. *Intermittent Fever, originating in Boston.* Case reported by Dr. THAYER.—A boy, twelve years old, who had been previously in good health, was on the common during the display of fire-works on the evening of Sept. 18, 1850, sitting on the ground. The air was very cool, and a fog prevailed during the evening. The next day, in the afternoon, he had a moderate chill, followed by heat and then sweating. On the third day (Sept. 20th) the chill and heat were more severe, and were repeated daily, at regular times, for ten days before advice was obtained. On the 30th Sept., Dr. T. saw him, and learned that his chill began at 5 P.M. and continued with severity till 6½, when extreme heat came on, and lasted until 11 P.M., at which time it was superseded by sweating, which continued through the night. The paroxysm was attended with severe pain in head, neck and back. During the remainder of the day, there was complete intermission, and with the exception of a degree of debility, there was no complaint whatever. Indeed, during most of the time, he had been at school as usual.

The child had lived in that part of Eliot street lying between Washington and Tremont streets, since he was six months old; and for ten years he had not been out of Boston over night; and had never in his life been farther than Dorchester.

He took sulphate of quinia, gr. 4½, daily. On the second day of the treatment, the paroxysm was not attended with pain, although the pain was present again on the third day. On the third day, the paroxysm was shorter; on the fourth, heat and sweating, without chill, and with very little pain; and from this time there was no appearance of the paroxysm whatever. On the fifth day, the sulphate of quinia was increased to 8 grains daily, and continued for four days longer.

Up to the present time there has been no return of the affection, and the child has been as well as ever.

Nov. 11. *Excision of Superior Maxillary Bone. Result unfavourable.*—Dr. S. PARKMAN exhibited the removed portion, showing a peculiar disease. A tumour had formed in the antrum, destroying by pressure the superior and posterior walls of this cavity, protruding into the cheek, and incorporating itself with the substance of the masseter muscle. In its progress, the orbitar edge and the zygomatic process were destroyed by erosion, but the bone did

not participate in the disease. A cut surface showed the structure white, and presenting fibres arranged side by side, with the appearance as seen in a common wart. The centre of the tumour was entirely disorganized, being diffluent and highly offensive. The tumour was not cancerous, and a microscopical examination showed the tissue to be composed of epithelial scales, making it probable that the disease originated in the mucous membrane of the antrum.

The patient was a man sixty-two years of age, who had suffered six months from a swelling of the right side of face, with very acute pain. Previous to the operation, the seat of the disease presented a smooth tumour extending from the temporal region to the lower jaw, measuring $5\frac{1}{2}$ by $4\frac{1}{2}$ inches in its two diameters, firm and painful on pressure, and causing, of course, great deformity. Enlarged veins were ramified over the surface, but these were only an exaggeration of a natural condition existing on the other side. There was no protrusion into the mouth; the teeth were all absent, but from the socket of one a small fungus protruded, and a probe passed into this opening traversed the antrum, and made its appearance in the nostril, whence there was a profuse, fetid, puriform discharge, obstructing the passage of air.

The operation was performed by a single first incision from the temple to the angle of the mouth, and a second, dividing the upper lip to the nostril; the flaps were dissected from the surface of the tumour and the bones divided by cutting forceps. After removal of the principal portion, the disease was found to have extended backwards towards the base of the skull involving the pterygoid process, &c. It was not thought advisable to pursue the dissection in this direction, and the actual cautery was freely applied. The wound was united by sutures, &c., and healed almost entirely by the first intention, the patient doing very well, until the eighth day, when there were symptoms of a pneumonic affection, and the patient died on the eleventh day. The post-mortem examination showed a pneumonia of the right lower lobe, the disease presenting some of the characters of the affection arising from purulent absorption, the inflammation concentrating itself in spots, which exuded a grayish pus on pressure.

ART. IV.—*Subclavian Aneurism successfully treated by Ligature of the left Subclavian Artery; with an account of the appearances on dissection a year afterwards.* By J. MASON WARREN, M. D. [Communicated to the Boston Society for Medical Improvement.]

THE account of the operation in this case was originally published in this Journal for January, 1849. The patient died a year after the operation, being worn out by a confinement of three months with typhoid fever. In order to

a full understanding of the appearances observed at the dissection, a brief abstract of the case will be required.

The patient was a female, thirty years old, of a delicate constitution. I saw her for the first time, in December 1847, on account of a small aneurismal tumour, the size of a pigeon's egg, placed just above the scapular end of the left clavicle. She stated that four months previously, while making the effort to extract a cork from a bottle, she felt a sudden crack at the spot where the present tumour is situated. No enlargement was noticed until some days afterwards, since when it has been gradually increasing. At her first visit to me, it had a powerful pulsation, and possessed the usual thrill of an aneurismal affection.

On an examination of the neck, the subclavian artery was not to be found in its normal situation beneath the clavicle, but after a long and critical manipulation, it was discovered running in an oblique direction across the neck, parallel with the edge of the trapezius muscle, and in company with the cervical plexus of axillary nerves. The first and part of the second rib could be distinguished above the clavicle.

The operation was performed on Dec. 24th, 1847, the ligature being applied to the vessels, between the scaleni muscles. The pulsations in the aneurismal swelling immediately ceased, and all appearance of tumour disappeared. The pulsations in the artery at the wrist returned on the second day after the operation, though feebly, but in the course of a few days they were fully re-established. The ligature did not separate from the artery until the ninety-sixth day, notwithstanding repeated efforts were made to detach it.

On September 14th, nine months after the application of the ligature, I saw the patient. She was then quite well, had recovered the use of the arm, and was in no way incommoded from the effects of the operation to which she had submitted. The aneurismal tumour had in a great measure disappeared, though more prominent than immediately after the ligature of the vessel. It still conveyed the impression to the touch of containing a fluid. On its surface was a large arterial branch, so incorporated with it as at first to give the idea of a return of pulsation in the whole mass, but which by more careful examination could be separated from it. The pulse at the wrist still remained less strong than in the corresponding artery of the other side.

She was subsequently seized with typhoid fever, from the effects of which she died, after an illness of three months.

As she lived out of town, I did not learn of her death until the following morning, when Dr. Brown and myself went out immediately, and requested an examination, which was readily granted. The corpse was already prepared for interment, so that it was impossible to make any preparatory injection for the more satisfactory inspection of the collateral circulation, which in a case of this kind would have been highly desirable.

The body was in the most extreme state of emaciation. The sternum, which was deformed, was excavated in such a manner that the posterior por-

tion projected backwards, and was in contact with the left side of the spinal column. The lungs were in a high degree emphysematous. On the neck was seen a scar, an inch in length, at the spot where the incision had been made in the operation. No tumour or other marks were observed at the point formerly occupied by the aneurismal sac.

The skin, cellular membrane and fascia being removed, the vessels and nerves were at once exposed, on account of the great absorption of the adipose substance. The subclavian artery, from its origin to the internal edge of the scalenus anticus, maintained its original size; but here it suddenly terminated. From this spot to the aneurismal sac was extended a flat cord, an inch and a half in length, seeming to be composed of little more than condensed cellular membrane. The aneurismal sac had contracted to a bulbous form, and was about twice the size of the vessel in its normal state; the enlargement suddenly ceasing at the point where the artery is embraced by the two heads of the median nerve, and the vessel regaining its natural size. On its surface was the supra-scapular artery, in this case a branch of the transverse cervical, greatly enlarged, and which gave rise to the apparent pulsations in the tumour before death.

The vessels forming the thyroid axis were twice their natural dimensions. The internal mammary was enlarged, and given off from the thyroid; it was through this, by means of the inosculations of the intercostals with the thoracic, and the posterior scapular with the subscapular, that the collateral circulation had apparently been accomplished.

Boston, *Oct.* 31*st*, 1850.

Art. V.—*Two Remarkable Cases of Abstinence.*—By Dr. Julius S. Taylor, of Carrollton, Montgomery Co., Ohio. (Read before the Montgomery Medical Society, November, 1850.)

Case I.—Mr. B. H——, aged 50, the father of a large family, had always enjoyed good health, and had been an industrious and active man. He was given to speculations, in some of which he had been successful, in others had lost. His losses, however, preponderated to such an extent that in the year 1841 he found himself nearly reduced to bankruptcy. His creditors became uneasy, and "pushed him"—which harassed him exceedingly. He lost his appetite; bowels became costive; skin yellow and dry; tongue relaxed and buffy-coated; pulse small and irregular. In connection with this train of symptoms, he became melancholy and strange in his behaviour, which, in the estimation of some of his most intimate friends, was looked upon as affectation or wilfulness. These symptoms having continued for several weeks, his anxious wife became alarmed, and sent for me as his medical adviser. I

visited him on the 7th day of February, and found his general appearance as above stated, and further, a great unwillingness to converse with strangers, or even with his family. With me, however, he conversed quite freely, and gave me a satisfactory answer to all questions in reference to his situation; assuring me, however, that my examination was useless, "as medicines would never do him any good." I became satisfied that his disease was purely mental, and advised, at once, an effort to be made to obtain a place for him at our noble State Lunatic Asylum. But upon the correspondence of some friends with the then worthy superintendent, it was found to be impossible to gain admission for him.

During the time occupied by the correspondence, I instituted such treatment as the symptoms seemed to indicate, and continued them for a few weeks, until it seemed to be absolutely nugatory, when I discontinued, and gave only advice in the way of persuasive treatment. During this time he became unwilling to converse with any person but myself, and in the month of February ceased to speak even to me. He then began to lessen his food, yet his general symptoms had changed but little, if any; and after a few days he ceased to eat or drink for ten successive days and nights. Neither persuasion, tears, nor threats, could induce him to eat or drink during that time. On the tenth day I visited him, and after talking for an hour, and asking many questions, all without the least answer or change of countenance, I then proposed to drink a glass of water with him. To this he at once consented, but said that "it must come directly from the spring in a bucket." The water was brought, and upon my proposing to drink a glass with him, he said, "You drink a glass full, and I will take the bucket." He put the bucket to his mouth, and did not take it away until he drank a little over half a gallon! This large draught of cold water produced a most violent chill, during which I proposed to him to drink some wine, to which he consented, provided I would drink "a teacupful first." It was a large dose for me; but still duty said drink, and I did; and he then drank another. The chill soon subsided, and I urged him to eat some food. This he resolutely refused to do, but agreed to visit my house the next day in a carriage, and dine with me upon "turkey."

According to agreement, his friends brought him to my house, and when dinner was ready he was seated at the table, but refused to eat. I suggested to a friend to help Mr. H., as he was feeble, and he would eat. Upon that suggestion he was helped, by putting the food to his lips, which he readily took in, after the first offer, which he resolutely refused for some time. At this meal he eat heartily of turkey, potatoes, bread, coffee, and some pie, without speaking a word, or refusing anything, until I thought he had been bountifully supplied, for the time.

During the ten days' abstinence he walked occasionally around the house, and his countenance was unaltered. His bowels had been moved once or twice during the time, and he passed urine also. He did not groan or com-

plain in any way; nor did he speak, or seem to notice anything that was passing in his family. While he was at my house, I endeavoured to divert his mind and excite him to speak, but did not succeed. After waiting a reasonable time after dinner, his friends *put* him into the carriage and returned home with him, and left him exhibiting the same fixed determination not to eat, drink or speak.

From that day he again desisted from food, or drink, or speaking for *fourteen* successive days and nights: during which time he appeared not to be weakened; nor did he present a feverish or excited appearance. His bowels were evacuated but once during the time, and he passed urine only three times. He slept generally well, and could be removed, or would move himself when asked so to do, and walked around the room occasionally during the daytime. On the fifteenth day, he yielded to the solicitation of his wife, and drank a small quantity of water, and walked up stairs to a more convenient room; and after a few days, spoke a few words to his wife, but again refused to talk to any person, or observe anything that was passing around him. Yet he would drink a little water with some milk in it; but not more than a gill a day, to the greatest extent, and oftentimes refusing this for several days at a time. This state of affairs continued, in spite of the anxious solicitations of an amiable wife and children, and all that kind friends could invent for his relief, until his death, which was on the 19th of May; he having lived about one hundred days in an almost constant state of abstinence.

During the above period, I called upon him, and recommended what, under the circumstances, seemed to be advisable. I had him taken to ride occasionally, when it could be done without too much force; gave him an injection of demulcent articles when this could be accomplished; sponged his body over, and oftentimes tried to give internal remedies, but always ineffectually. He did not seem to have lost his reason, however, to any great extent; or, at least, his friends so thought: but he had a fixed determination to die, if possible, by abstinence.

During the period which elapsed after his last total abstinence, until his death, he did not present any symptoms of pain or disease. His eyes were as bright as usual; his skin cool and natural: his urine was evacuated every ten days; but his bowels were not moved oftener than once in from eight to fifteen days, and then but very slightly. His flesh, which, when he was taken, was moderate, he weighing about 165 pounds, continued to diminish gradually until he was a perfect skeleton. He walked around the room occasionally until three or four days before his death, when he laid down and slept, and waked, without any change in the appearance of his eyes, until he died like one going to sleep.

Case II.—The next case is that of Mr. J. S——, aged twenty-six years. He had been a steady and very industrious person during his life; always attending to the directions of his parents and elder brothers, as their govern-

ment was extended over him. His health had been good during his boyhood, which enabled him to perform all the various labours incidental to an agricultural life. After his father's death, he went to learn the carpenter's trade, at which he continued until his last illness, enjoying good health, except for a few days in the year 1849, when he consulted me for a disturbance of his bowels, which soon passed away. He showed at the time, however, slight mental derangement for a few days.

In the month of January, 1849, he consulted me again, in reference to pains in his bowels, and slight headache—pupils of his eyes considerably dilated, and presenting some slight appearance of mental derangement, which appeared in his singular questions, &c. I prescribed for him, with apparent relief and satisfaction, several times, until he supposed himself well. I did not hear from him again for several weeks, when I was summoned to see him at his residence. Found him with slow pulse (65), irregular, and having a chill, followed by fever every other day; pupils dilated, bowels costive, and urine scanty. After prescribing, as I believed, appropriately, these symptoms subsided, and were followed by strong emotions of *fear*, mostly of dogs, and marked mental derangement. For the relief of this, appropriate remedies were prescribed, and immediate application was made to the superintendent of our State Lunatic Asylum for his admission there. But it was found, at that time, he could not be admitted. I gave him such remedies as the case seemed to require, until it appeared to be hopeless, when I left him under the charge of a most careful mother, and brothers, and sisters, all of whom were assiduous and devoted in devising and applying all things for his relief and cure. His mental derangement increased; he became restless, and exceedingly fearful, frequently imagining dogs to be chasing him, when, one day, in the momentary absence of friends, he plunged headforemost through the window of an upper story, and fell about twelve feet to the ground. He did not suffer from the fall, and he continued as before, gradually becoming more averse to moving, until, when the family thought it proper for him to take a ride, they had to employ force. He now began to lie continually in bed, without talking, and eating only a little once in about two days, and drinking a little water. He spoke but few words, in a feeble voice; pulse quick; skin cool; gave no signs of pain or sickness; his flesh gradually wasting away. This state of affairs continued until fifty-one days before his death, when he positively refused to eat or drink; which determination continued for twelve successive days and nights, and then he asked, with a good voice, for some water. A little was given him, which caused him to vomit; but, after trying it a few times, it remained on his stomach. From that time, for thirty-nine successive days, he drank a very small quantity of water, not to exceed one gill in twenty-four hours, but did not taste one particle of food during all the time; thus having lived one year, eight months, and sixteen days, in an almost perfect state of starvation, and fifty-one days without food of any kind. He died on the 29th of September,

1850. For the last seventy-two days prior to his death he had no fecal evacuation, but passed urine in small quantities every three or four days.

Cases of long-continued abstinence must be of exceeding rare occurrence, for I find but four cited in all the numbers of that valuable record of our science, *The American Journal of the Medical Sciences*, from beginning to end. The first case is in vol. vi., page 543, of a young man, who lived fifty-four days on water alone. The second case is in vol. ix., page 499, of a criminal, who lived sixty-three days upon water, but had convulsions, &c. The third case is in vol. xvii., page 479, of a female, who is said to have lived a year on water. The fourth case is in the New Series, No. xix., page 172, of one who lived ten days. In vol. x. of the *Eclectic Repository*, page 326, I find a case reported as remarkable for the patient's preservation after an abstinence of twelve days. In *Good's Study of Medicine*, vol. i., page 84, I find quoted several cases of very long abstinence—one of fifty-two days, one of sixty-one days, and others which are said to have existed even for years, on water alone.

These cases, as well as those reported by myself, prove the inaccuracy of the vulgar belief that a person cannot live beyond nine days without food or drink.

[*Remarks by the Editor.*—The preceding cases are extremely interesting, and are among the most remarkable for the length of time that abstinence was borne that are to be found in the annals of our science. It is a curious problem, but one which does not admit of any precise solution, what is the extent to which abstinence can be carried. Numerous instances are on record of abstinence for an extraordinary length of time; and although many of these are indebted for the credit they have obtained to the love of the marvellous, natural to the human mind, there are others, sustained by such satisfactory evidence, so carefully observed, every source of error guarded against, that we cannot refuse them our belief. Thevenot asserts that the Arabs can remain five days without food; and others that the Tartars support abstinence for fifteen, sixteen, and even seventeen days. A woman survived nearly eight days, buried in the snow without food. (Okes, *Duncan's Annals*, iv. 500.) A young man, confined in a coal-pit, by a sudden burst of water into it, remained twelve days without any other sustenance than a little water, which trickled down a rock and was collected by him in the hollow of his hand. (T. T. Griffith, *Lond. Med. and Phys. J.*, Feb. 1830, and *Eclectic Repertory*, x. 327. Philadelphia, 1820.) A woman who lost her way in a coal-pit remained for eighteen days without any nourishment except a little of her own milk for the first three days, and water subsequently. (Rankine, *Annals of Med.* viii. 492. Edinburgh, 1804.) A maniac in the Lunatic Asylum at Montrose often abstained from every kind of food, both solid and liquid, for fourteen days in succession (*Ann. of Med.* v. 383), and Plot speaks of a melancholic person who fasted for the same period. Cheyne states that a phthisical patient lived thirty days upon water with a little nitre dissolved

in it. (*Diseases of body and mind*, p. 109.) Dr. FRANCIS quotes the case of a negro woman who, supposing herself affected with *Obi*, refused all sustenance for seven weeks, during all which period she took for her support only about two cups of water slightly medicated with wine. (*New York Med. and Phys. Journ.* for 1823, ii. 21.) A young woman whose case is recorded by Dr. ECCLES (*Med. Ess. and Obs.* v. art. xliii.), was affected with spasms of the œsophagus to such a degree as to be unable to swallow, and remained thirty-four days without taking any nourishment. The spasms then abated, and she continued to take some food for about three weeks, when the spasms returned, and for fifty-four days she was unable to eat or drink. In a case related by Prof. M'NAUGHTON, a man lived fifty-four days on water (*American Journ. Med. Sci.*, vi., 543); and in another quoted by VALISNIERI, the patient lived for seventy-six days. BORELLI (*Cent.* iii., Obs. 35) gives an account of a case in which abstinence was continued for three months, and MERCARDIER (*Journ. de Méd.* xxiii., 133) quotes another, prolonged for six months. Many instances of even more protracted abstinence are recorded. SCHMALS relates two cases, one of a female who lived two years and a half without food or drink, and another, a female also, who was still alive at the period of his report, and who had not eaten or drunk for six years. (See *Am. Journ. Med. Sci.* for Nov. 1833.) In a case related by VANDERMONDE (*Journ. de Méd.* xiii. 158), abstinence was protracted for twenty-six years; but the most extraordinary of all is the one related by the Rev. Mr. STEILL (*Med. Essays and Obs.* v., art. xliv.), in which the patient lived for fifty years, upon a little whey, or milk and water. HALLER has collected many cases of this description, and a still greater number have been recorded by subsequent writers. The cases, however, we have alluded to, most of which have an appearance of authenticity, are sufficient to show that it is utterly impossible to fix the limits to which abstinence in the human species can be carried.

The experiments of MAGENDIE on animals, belonging to genera near to man, show that they cannot support abstinence beyond fourteen or fifteen days. Some large dogs, however, subjected to abstinence by M. COLLARD DE MARTINGY, lived three, four, and five weeks, and even longer. This last experimentalist also found that the younger the animal the shorter was the time that they could support abstinence; and the smaller the animal, whether of the same or different species, the shorter the period they could live without food. Of some capons subjected by REDI to complete abstinence from food and drink, none lived beyond the ninth day. One of these animals, however, to which he allowed some water, lived to the twentieth day. (*Dict. de Méd.*, 2d ed., i. 286.)

Most of the remarkable cases of abstinence we have cited, and the greater number of all those recorded by writers, were in sick persons; and daily observation shows that abstinence can be supported with greater ease in sickness than in health. Of all diseases, insanity and melancholy allow of the most protracted fasting. It is in hysteric or melancholic girls that instances of the

longest abstinence have occurred. Hard study, the ardent pursuit of objects, love, ambition, exalted devotion, all powerful excitements of the brain, cause a forgetfulness of the wants of reparation. It is reported of Sir Isaac Newton that when immersed in his studies he would forget his meals. Sleep is also favourable to protracted abstinence; it is well known that hybernating animals, as the marmot, &c., live without food during a whole season.

It may be laid down as a physiological axiom, that the more actively the organic actions are performed the more urgent and imperious will be experienced the necessity of reparation. Hence in early life abstinence cannot be borne so well as at a more advanced period. Hippocrates observed that the younger a person is the more irresistible is the sensation of hunger; and the experiments of Collard de Martigny, as we have already stated, show that the younger the animal the sooner it dies from privation of food.

Women appear to support abstinence better than men, since we find more instances of prolonged abstinence in the former than in the latter. This may arise from women, generally, taking in health less food than men, and from their suffering less loss by secretions, in consequence of their less active life.

Cold would seem to be very favourable to prolonged abstinence, by its lessening all the organic actions, and abating the losses by perspiration, &c.

Moisture has also been supposed to be favourable to the prolongation of abstinence, in consequence, as some think, of absorption taking place in the lungs, and, according to others, from the skin. Be this as it may, the length of time which persons confined in damp places have endured abstinence, seems to support the idea that moisture is somehow favourable. Various other circumstances, as the constitution of the individual, and his habits, the seasons, &c., exercise an influence upon the duration of abstinence; but we are not in possession of a sufficient number of facts to enable us to determine positively their precise effects.

For much further information on this subject, we refer to the article Abstinence in the *American Cyclopedia of Practical Medicine and Surgery*, edited by Isaac Hays, M. D.]

Art. VI.—*Observations on Typhoid Fever and its complications, as it prevails in the town and vicinity of Mount Vernon, Indiana.* By W. H. Byford, M. D.

Typhoid fever has been prevailing more or less extensively in our neighbourhood for three or four years, in connection with various endemic diseases. The earlier cases were less complicated and milder than those which have more recently occurred.

The most frequent subjects of the disease were young and apparently

healthy men; during the early period of its prevalence females were rarely attacked, and children under twelve years of age were almost exempt. For the last two years, however, all ages, both sexes and every condition have been seized with it. As a general rule, however, it is far more likely to attack young and robust persons than either the old or very young, and the severity and fatality with which it runs its course are augmented in proportion to the approach to the former condition.

The phenomena of typhoid fever have been so fully described, and are so familiar to every physician, that it will be only necessary here to give the characteristic features presented by the disease as it prevailed among us, and this we shall do in order to enable the reader to judge as to the value of the views we shall set forth respecting its treatment.

The onset of this fever was not characterized by any peculiarity. The disease sometimes commencing very suddenly, though generally more gradually, was ushered in by rigors more or less severe, alternating, perhaps, with heat. Headache, vertigo, nausea, with or without vomiting, are often among the early symptoms. In established cases, the patient appears somnolent and listless, with an expression of dejection and even despair depicted upon his countenance. The face is flushed and of a dingy dirty colour. The eye lustrous, yet sleepy. Sometimes the patients are vigilant, talkative and restless. Mental hallucinations with stupor were frequent though not constant symptoms. Whatever may have been the mental manifestations early in the disease, stupor, more or less profound, exists for some time prior to death, where this was the finale of the case. Headache, boneache, and many other wandering and vague painful sensations are present in most instances, accompanied in the course of the disease with muscular debility and tendinous twitchings—merely subsultus generally, but occasionally amounting to choreal grimaces and gestures, and still less frequently to violent tonic contractions of large numbers of muscles, placing the body in constrained and unusual positions. In other cases, general convulsions are observed. The headache when present is generally severe in the onset, but during the advance of the malady subsides, leaving the patient free from this species of suffering. The temperature of the surface varies from burning heat in the commencement to coolness, and sometimes absolute coldness. The skin, ordinarily dry and dirty looking, is very prone to become suddenly wet with its own secretion, soon to become again arid. The pulse is nearly always above the natural standard, numerically, and as uniformly below it in firmness; sometimes full but soft.

The alimentary canal always exhibits manifest signs of disorder. The tongue is coated in the commencement with a thick whitish mucous covering, often yellow towards the root—leaving the tip and edges only naked, which are of a fiery red colour, and disposed to crack and become sore.

In the advanced stages this red border gradually encroaches upon the coated portion, carrying the covering before it, until the whole tongue is of a deep

scarlet hue, dry, raw, cracked and sore; while sordes begin to collect about the teeth and gums, and tenacious mucus, rendering the mouth clammy and offensive to the sufferer. At other times the white or yellow fur on the tongue becomes black, as if stained by charcoal. Sickness at the stomach and vomiting, in a majority of examples, usher in the attack; but they seldom last for more than a few days, and are accompanied and succeeded by urgent thirst for cool and acidulated drinks. The bowels, usually costive at first, after a few days—from one to five—become loose and irritable, the discharges are large, serous, and generally green, and occur not unfrequently as often as every hour, though generally once in two hours. Although costiveness is generally present in the onset, diarrhœa does occasionally come on with the fever. This diarrhœa is by far the most obstinate symptom that presents itself, lasting throughout the entire progress of the case, and exhausting the patient so much that in fatal instances it seemed to me to be the principal cause of death. The discharge at the commencement, in all cases of a simple character, is serous, and is often attributed by the patient to the operation of a cathartic dose, taken by the patient upon his own responsibility, or from the suggestion of his medical adviser; and whatever the medicine may be, the result is the same. In the lapse of time, blood and mucus, one or both, may be, but are not always, mixed with the other discharges. When tenesmus and many other symptoms denoting inflammation of the colon and rectum supervene, which in most cases are apt to mark them as fatal—tympanitis, borborygmy, eructations, and the discharge per anum of a large amount of wind, generally comprised a part of the long catalogue of painful symptoms in the advanced stages of the complaint. Much less frequently the abdomen is flat and lank, with tumidity only about the iliac region. Whatever its condition may be as to tumidity, tenderness, when the patient retained his senses, is, I believe, always complained of; perceptible, possibly, only when the attention was drawn to the diseased part of the bowel by pressure. The urinary secretion varies also in quantity and quality; almost total suppression is usual, and what is secreted is highly coloured and scalding to the urethra, producing strangury that annoys both the physician and patient, and which, towards the conclusion of many cases in which much stupor existed, needs the catheter to relieve. Bloody urine, and numerous deposits with swelling of the genitals, are often observed.

Such is a sketch of the more simple cases as they occurred during the first two years after the commencement of the disease in this vicinity; and during this period I do not remember to have seen the symptoms of any other acute disease engrafted upon or blended with those of typhoid fever. As this fever grew more frequent, however, complications with chest disease became common, and now the greater majority of cases exhibit symptoms denoting this formidable complication. There is dulness on percussion over some portion of the chest; pain and difficult breathing, and physical signs indicative of some form of disease within the chest, with cough and expectoration. The

most common complication is inflammation of the lungs. Usually the first indications of disease of the chest are observed from one to five days after the onset of the fever, but in many instances they are coeval with, and indeed may even precede it. This complication is at the present time the most prevalent. I have reason to believe indeed that pneumonia had existed in several cases where the chest was not auscultated early in the case without its being discovered for several days after. A prominent instance occurred in my practice quite recently, in which the stage of hepatization was discovered by auscultation and percussion, and to which additional evidence was added the symptoms peculiar to pneumonia in its march towards resolution. All obscure examples of this complication have occurred in persons advanced in age.

It is unnecessary to enter into a more minute description of the pneumonia above, mentioned but I would add to what has already been said that all the cases intended to be included in this imperfect description exhibited completely and unequivocally the distinctive features of the two diseases. And it is this form of disease alone to which in my opinion the name of typhoid pneumonia should be exclusively applied. Indeed, it has always appeared to me a misapplication of the term to use it in connection with a disease that does not manifest this condition from the commencement.

The small rose-coloured eruption was frequently observed, but in many cases, which in every other respect were similar, these spots were looked for in vain. It may be well to observe, as confirmatory of the same statement by others, that the remittent and intermittent bilious fevers, formerly so very prevalent here, have almost disappeared since the occupancy of the same districts by this fever.

I am unable to add anything relative to the morbid anatomy of the disease, for the prejudices of friends precluded post-mortem investigation.

I wish to premise to what I have to say on the subject of treatment, the remark, that should my experience differ in respect to the use of some remedies from the teachings of the most approved authors, and the plan adopted by a large majority of my fellow practitioners, I have been driven to the use of them from a want of others that would fulfil the indications presented by the disease as it prevails here. That experience too is not the result of a few cases merely, but of laborious practice in it for three years in a locality where it is the ruling disease.

The treatment of simple typhoid fever, so far as I know, generally partakes very largely of the expectant. And this, probably, originates from the fact that most internal remedies as well as almost all ingesta irritate the bowels, and are thus injurious. The diet is a matter of the first consideration, and should be of the blandest and least irritating character. What agrees best generally is rice-water cooled with ice to suit the burning thirst of the patient, to which he may be confined for the first part of the disease; as debility indicates the necessity of more nutritious diet, animal broths made

of lean portions of flesh, any supernatant oily matter, being carefully taken off, will answer a good purpose. This kind of bland but nutritious food should be commenced early in the disease, and given in quantities sufficient to sustain the strength of the patient against the exhausting influence of the disease, with the same regularity as to time and quantity that we observe in the use of medicines. By this course we will avoid the necessity of using alcohol or other stimulants, which, when given in quantities large enough to obtain any effect from them, produce some perturbation in a system already too highly irritated. Quantity, in the use of nourishment, is a matter of the greatest importance; we should use a small quantity at a time, and repeat often enough to gain the required amount. It always has seemed to me, in the small experience I have had in the use of stimulants, especially the alcoholic, that as they are generally used they are more injurious than beneficial; that the rules for administering them should be plain and well understood; and that they should be used only when there is an unequivocal demand for them. And I think, in the case before us, we are not to prescribe wine because we are treating typhoid fever, but for no other reason than that alarming sinking is present. This will be found to be the case usually when treatment has been delayed or inefficient. The nourishing plan should be commenced early, and continued perseveringly and systematically; not by tonics or stimulants, but by the introduction of nutritive, unstimulating aliments, administered with the same scrupulous regularity as to time, quantity, and quality, as we observe in exhibiting medicinal substances.

Another point for consideration, which presents itself to one accustomed to seeing the progress of this disease, is the frequent imprudent assumption of the erect or sitting posture for evacuating the bowels and bladder. This is a fruitful source of the exhaustion supervening on the latter stages of this fever. No excuse, therefore, should be allowed the patient for the interruption of the most entire quietude in the recumbent posture. The means of obviating this difficulty are well known to all, and supplied by the many forms of convenient bed-pans now in use, combining cleanliness with convenience. Frequent change of position in the bed should also be discouraged. The idea will readily occur to every mind that frequent motion and change not only exhaust the strength directly, but also increase the irritation of the bowels, and thus indirectly contribute to the production of the same effect. The urgent thirst that sometimes occurs is too often allayed by the use of different drinks that are not the most appropriate; such, for instance, as acidulated water, soda water, and other effervescing draughts. We should recollect that in fatal cases the damage generally occurs to the small intestines, and that acids and neutral salts both will, more or less, irritate the mucous surface of that important portion of the alimentary canal. And experience teaches the important fact also, that in this disease the diarrhœa is almost immediately increased by the use of any of these articles, if used in quantities sufficient to allay the thirst. Ice water in small quantities, or ice in substance, will sel-

dom disagree, and will most effectually accomplish the object we should have in view, to cool without irritating the mucous surface. Sponging the cutaneous surface allays very perceptibly the febrile excitement, and adds much to the comfort of the patient, especially if there is burning heat of the surface—in which case alone it is applicable. So far as medical treatment is concerned, the train of symptoms which need most attention in typhoid fever is that connected with the intestinal lesions. As this, like most fevers, tends to resolve itself in health after running a definite course, our object should be to arrest the local affections presenting themselves during its continuance, which experience has proven to be most fatal in their effects. Now it is conceded by the weight of authority, that the intestinal lesions are constant and generally the most extensive in grave cases, and are manifested by severity in the symptoms pointing to this source, among which diarrhœa holds a conspicuous place, and the obstinate persistence of this sign is of fatal import. It is also obvious that its continuance must in more than one way aggravate the pathological condition upon which it depends. For example, by the irritation of transporting the contents of the upper bowels and stomach over the diseased surface—by the motion of peristaltic action, and indirectly by the motion of the patient in attending to the necessary calls. It is admitted, too, as a fact, that means calculated to prevent, or in any way mitigate, the *characteristic* lesions of fevers where they are known, such as the eruption in small-pox, measles, &c., cause them to pursue a milder course, as also to prevent the *accidental* lesions which are observed in all of them. Hence we infer that such will be the case in the use of remedies calculated to relieve the intestinal disorder in typhoid fever. The remedies, therefore, that will effect the arrest, or even a considerable moderation of the diarrhœa—which is so constantly draining the system—without proving deleterious otherwise, are the great object of our search. In any organ inflamed, in which motion is a part of its function, rest, if not indispensable, is at least desirable in the treatment of that inflammation. Now as the motion in this case is in a great measure dependent upon the irritation produced by this inflammation in the moving part, and as we cannot remove this cause of irritation by any means within our power, the only resource left is to allay that irritation by the use of soothing medicines. The one, according to my experience, best calculated to do this is opium, in as large doses as are necessary to restrain the diarrhœa, and repeated as often as the patient can bear it. I am aware that opium to any extent, in the disease under consideration, is objected to by many on account of its effects upon the brain, causing stupor, delirium, &c. But we are led to suspect disease of the brain when upon examination no lesions are discoverable—and we should not abandon the use of a remedy for fear of possible danger from it. If we were to do so, we might lay aside many of our most useful and efficient drugs. I think, then, we can make the use of opium the rule instead of the exception. A fact might be mentioned here, which I believe is not generally practiced upon, as to the effects

of this medicine upon local inflammation; viz., to keep the system under the influence of large doses of opium for several days will render local inflammations of the mucous membranes mild and manageable that have for a long period resisted the most judicious management. Thus patients affected with chronic ophthalmia often take sixty grains in as many consecutive hours, with the most happy effect upon the conjunctiva.

My usual management is to commence with an emetic of ipecacuanha, and follow it in five or six hours with a cathartic of calomel and jalap, in order to effectually empty the stomach and bowels, and thus be prepared for any other treatment that may be indicated. For a febrifuge when there is no pain or soreness in the abdomen, or diarrhœa, the James's powder, or nitrous powders were generally used. When the abdomen is tympanitic, however, with pain and diarrhœa, all other medicines are laid aside for opium in some shape, and the one commonly used is Dover's powders, in as large doses as the stomach will bear, or sufficient to allay the pain and diarrhœa. And should this not be sufficient, opium is added to them, in sufficient doses to have the desired effect, if possible. And although occasionally some degree of stupor may be the result, it is seldom considerable, and never increases to an alarming extent, although as much as thirty grains in twenty-four hours were given. In many instances where delirium, restlessness, subsultus, and jactitation are great, they are *all relieved*, and the patient much improved by full doses of opium, repeated so as to keep the patient constantly under its influence. I have witnessed cases in which the medicine was suspended from some imagined bad effect, with a return of all the distressing symptoms above named, again disappearing so soon as it was resumed. And in all cases, with very few exceptions, where this course was continued, the patients comfortably weathered through their disease and recovered, it only being necessary to gradually increase the dose to keep up the effect. The complications of this fever, of which by far the most common are pneumonia and bronchitis, although they somewhat modify, do not change the treatment necessary. And however inappropriate opiates may be in the ordinary forms of pneumonia, especially when so frequently repeated, they have in my experience, I may say, invariably produced beneficial results in cases supervening upon or accompanied by typhoid fever. Indeed, the symptoms all yielded sooner than they do under any other course of treatment I have seen adopted. The treatment I have seen most effectual in this complication, after an emetic and cathartic, consisted in calomel and opium, according to the condition of the bowels, repeated every three or four hours until the mercurial influence was indicated by the ordinary affection of the gums and salivary glands. When this was brought about, the calomel was discontinued and the patient put under the opiate treatment, as above described. Mustard plasters and fomentations early, and blisters at a later period, constituted the local treatment used in such cases.

Case I.—*February 4th*, 1838. Was called to see J. H., aged twenty-six years, sanguine bilious temperament. Had been sick four days with fever, pain in head, vertigo and slight delirium at night; aching of bones and back, nausea and sense of heaviness of epigastrium. Tongue coated yellow, edges and tip red, bowels costive, soreness over the whole of the abdomen, with tension. Skin hot and dry. Pulse 120, weak and small. Urine scanty and high colored; in short, he was labouring under typhus fever, which was then prevailing. Ordered an emetic of ipecac, to be followed in four hours with cathartic of calomel and jalap. After the operation of the cathartic, to take six grains of James's powders every three hours; and should the bowels be operated on too freely, to take Dover's powders, gr. viii, every three hours until the discharges are checked. Sponging of the surface, cold to the head.

5*th*. Cathartic operated in two hours, very copiously. Has taken several of the Dover's powders; but yet the bowels act as often as once every four hours. The stools are thin, greenish, serous, without a trace of fecal matter. Delirium is more decided; the patient is restless and talkative, but not raving; the surface over the abdomen very hot, less so elsewhere, but rather above the natural temperature; tympanitis; the tenderness great over the middle and right side of the abdomen. Tongue dry and red on the tip and edges. Vomits the James's powder. Take Dover's powders gr. viii with gr. ss of opium every three hours. Foment the abdomen with warm camphorated spirits. Take teaspoonful of chicken-water every four hours. If bowels are not restrained, take thirty drops of laudanum as often as necessary to effect this object.

7*th*. Patient is better; has rested well; complains of no pain; more rational. Pulse about 120, weak and small. Complains of great debility. Has had but two operations from the bowels since last visit, which was directly after it. To keep perfectly quiet in the recumbent posture. Continue the medicines and nourishment as last prescribed.

9*th*. Continues about the same as at last visit; has had four dejections from bowels. Nurse found it necessary to give the laudanum several times; does not remember how often. The opium in Dover's powders was now increased to three-fourths of a grain, and direction given to administer laudanum if necessary. Continue chicken-water, &c.

11*th*. A slight improvement in all the symptoms. Had one passage, which was more consistent and fecal. The patient continued gradually to improve; but acquired a still further increase of the opiates, until he took two grains of opium every four hours, with laudanum between these doses occasionally.

J. H. was under this treatment for twenty-eight days, during which time, he seemed benefited by each increase in the dose of opium. It appeared always to quiet his restlessness and delirium, which was aggravated upon every return of diarrhœa. When opium produced merely quiet sleep and the patient could be easily aroused, which was the case with almost all the instances I have witnessed in typhoid fever, I consider it advisable to continue it.

I might detail many cases like the above; but as the symptoms and treatment vary so very slightly, I think it quite unnecessary.

The following is a case complicated with pneumonia, in which the opiate treatment in a modified form was used with great apparent benefit.

Case II.—W. C., aged 28 years, was attacked, March 1st, 1850, with typhoid fever, which continued without other than the ordinary symptoms of

the disease, until the evening of the 4th, when he suddenly became chilly, and began to experience difficulty of breathing; had pain in the right side extending to the shoulder, cough, and next day was expectorating the rusty-looking sputa so common in inflammation on the lungs. His condition on the fifth was the following: Countenance anxious and suffused, with a dusky blush; pulse 120, weak and small; tongue covered with dark brown fur on the middle and root, while the edges and tip were red and glossy; nausea but no vomiting, diarrhœa of thin dark serum, attended with pain, which dated from the operation of a dose of Cook's pills. On the third day of the disease abdomen tender, and tympanitic with borborygmy, subsultus tendinum and stupor, from which the patient could be easily aroused, and when awake his conversation was vague and incoherent; pain of a dull heavy character in the right side and shoulder; cough, with bloody tenacious expectoration; dulness on percussion over two-thirds of the right lung, below and behind; absence of all respiratory sounds in the lower portion; fine crepitus in a line across the chest, about two inches wide, rather above the middle of this side. Ordered an emetic of ipecacuanha, followed by the following powder every three hours: Cal. gr. ii; ipec. gr. iv; opium gr. i. Mix. Mustard all over the affected side; fomentations with hot camphor to the abdomen; a teacupful of chicken-water every four hours, and drink to consist of gum-Arabic water. 7*th*. Was better, for first twenty-four hours, but since that his bowels have been moved too frequently; is becoming quite weak, otherwise the symptoms are about the same. Continue the powders and pursue the other directions with addition of Dover's powder gr. viii; as often as necessary to keep the bowels in check. To observe absolute quiet in the recumbent posture. 9*th*. In nearly the same condition as at last visit, except that his bowels have been controlled by taking a Dover's powder between each of the other powders. This treatment was continued for four days longer, when the gums became slightly affected by the mercury. The symptoms of pneumonia gradually subsided, and in a few more days the simple fever, so far as could be judged by appearances, was the only disease present. On the supervention of ptyalism the calomel was omitted, and the opium and ipecac. with the addition of two grains of camphor to each powder. Dover's powder was continued. It was necessary in the progress of the case to increase the opium in the powders to two grains, and to continue the Dover's powders in the above doses. The patient lingered for seventeen days before the fever began to yield; convalescence then gradually set in and continued, when the opiates were gradually diminished in quantity until he was out of all danger.

My object in the above communication has been to detail, in as intelligible a manner as I could, a course of treatment which I think will be found beneficial in many instances of this troublesome fever, and I am in hopes that no one will condemn the course above described without first giving it a trial. I believe they can the more readily consent to do this from the consideration that the treatment is not so defined either by authority or the interpretations usually put upon symptoms as indications for treatment, as not to justify any course, however different from the one commonly followed, that experience may upon trial sanction.

I would here mention another circumstance which I have often observed in this fever, viz., that purgatives or laxatives produce very exaggerated effects when administered by the mouth, and will mention one instance

as illustrative of their kind of influence. I have a patient now under treatment who informed me that one teaspoonful of castor oil operated on her in five minutes, very copiously, producing violent griping pains. She also informed me that in an ordinary way she required more than the usual dose to affect her. On the second day after she mentioned it to me, it became necessary to administer another laxative. I determined to satisfy myself whether she was mistaken in this respect. I accordingly gave her a teaspoonful of oil, and in ten minutes she had a copious serous evacuation, and it was necessary in half an hour to resume the opiates in order to control its effects.

Although the above is an extreme case, yet it will be necessary to bear the fact in mind, and use injections alone as laxatives to avoid undue irritation of the bowels.

ART. VII.—*Cases in Surgery.* By D. GILBERT, M. D. (of Gettysburg, Pa.), Prof. of Surgery in Med. Dept. of Penn. College, Philad.

THE publication of cases in illustration of subjects which characterize progress in any of the practical departments of medicine, is necessary to the full development and illustration of principles involved. With this view, the following practical details in surgery have been selected from my case-book, and are respectfully presented to the notice of the profession. The practical procedures are either entirely new, or illustrate such as require further confirmation. It is, therefore, believed that their publication will add something to the common stock of our surgical knowledge.

CASE I.—N. S., æt. forty-three. Health enfeebled for several years by impaired digestion, sustained severe injuries of the knee, thigh, and pelvis, caused by falling timbers, at "a raising" of a barn, August 10, 1850. On examination, aided by my partner, H. S. Huber, M. D., found that the injured parts had been caught between falling timbers, three of which fell severally upon the parts injured. The thigh bone was fractured in the upper part of the lower third obliquely. The knee had been dislocated laterally, but reduced before we arrived. The lateral ligaments being torn, the articular surfaces could be moved upon each other, from side to side, very easily. The soft parts from the knee to the thorax, including the penis and anterior part of pelvis, were seriously contused, and ecchymosed. We adopted the angular method, temporarily, until the apparatus for the straight plan of treatment could be provided, it being at some distance in the country. This was procured next day, and applied in the usual manner: except (1), instead of the permanently attached block of Hutchinson, a movable one, which I have found more convenient, was used. This may be made of inch plank,

the shape of the figure 4, the longest side measuring about eight inches. It is attached flatwise, by passing the extended part, as a tenon, through a mortice hole, one inch square, in the long splint, and securing it there by a pin passing close to the outside of the splint; the long side of the triangular portion on the inside of splint presenting obliquely towards the foot of the patient. (2.) Instead of a mere extension band, I attached this to the straps of a common tourniquet, close to the sole of the foot, and placed the instrument upon the distal side of the block, which is at right angles with the splint, and thus, by the screw of the tourniquet, increased or diminished the extending power at pleasure. (3.) Instead of the perineal band, I had an opportunity of testing the value of *adhesive plaster* as a counter-extending bandage. Dr. Wallace, of Philadelphia, introduced, several years ago, the use of this in making extension at the ankle; and my experience with it has been so favourable that I concluded to use the same material in counter-extension on the first opportunity. This case, all will admit, presented a rare occasion for testing its utility, as the condition of the parts would not allow the use of the ordinary bandages.

The several constituents of the apparatus having been laid down in the usual order, two adhesive strips, two and a half inches wide and two feet long each, were laid diagonally, one from either side, above and upon the tailed bandage, so that their inner extremities crossed each other at an angle of about 100°, and extended about four inches farther. The strip which laid towards the sound side was rolled up from its outer extremity to the point of crossing, and the short inner end of the other strip to the same point. The patient being placed upon the apparatus thus arranged, the unrolled strip attached itself to the posterior surface, from the perineum to a point above the ileum; the roll of the other was brought over the perineum, upper part of thigh, and up inside of the cresta of the ileum to meet the other strip; its inner extremity being under the posterior surface of thigh, and the short roll of the posterior strip occupying the inner and partly anterior surface of thigh, their point of crossing being brought to inner and upper part of thigh close to perineum. Externally, the extremities of these strips also crossed each other—the posterior to the upper mortise hole, and the anterior to the lower mortise hole of the splint—in order to increase their surfaces of attachment to the body of the patient. The application of the remainder of the apparatus being completed, extension and counter-extension was made, and subsequently maintained. Without giving the subsequent treatment in detail, it is sufficient to say that no complaints were uttered in reference to these adhesive bands, although, by means of the tourniquet, they were held in a state of constant tension. The contusions and laceration of the ligaments of the knee yielded to anodyne resolvent washes, and, at the end of seven weeks, the bone was firmly united. To insure entire safety, the limb was placed on the double inclined plane for another week, when all retentive measures were abandoned. At the end of four weeks, after its first application, the anterior adhesive plas-

ter became loose, and Dr. Huber supplied its place by another somewhat longer; with this exception, and one renewal of the extending bands, they were not removed during the whole period of treatment. There is no shortening of the limb, although the fracture was oblique.

The advantages of a movable block are, that it does not interfere when the splint is rolled in the cloth, and can be attached to whichever side of the splint presents towards the patient; and, above all, it furnishes a secure place of attachment for the frame of the tourniquet, by means of which continued and varied extension is always at the command of the surgeon. Our greatest difficulties, however, ordinarily arise from the pressure and excoriation caused by the extending and counter-extending bandages at the ankle and perineum. The lameness of the Marquis de Lafayette resulted, it is said, from *ulceration* produced by the perineal band when he was treated for this fracture. To obviate these sources of embarrassment in the treatment of fractured thigh, materials combining softness and firmness have been selected, made into various forms, so as to extend, distribute, and vary their points of contact, and press equally, smoothly, and softly; and yet, to render these tolerable, with the best appliances, it is found necessary to remove the bandages daily, and bathe the parts with spirits, or mild liniments, thus protracting union by frequent motion, besides requiring the daily service of the attending surgeon. In hospital practice, such attention is provided for; but in country locations, where the medical attendant cannot visit the patient oftener than once in three or four days, the consequences are sometimes disastrous. During his absence, the patient, unable to endure the pain, loosens the bandages, and displacement is the consequence; or, resolving bravely to endure the pain, the practitioner finds an amount of excoriation, with a morbidly irritable condition of the constitution from suffering, which seriously interfere with the successful issue of the case. These difficulties, every one who has had experience, has realized; and hence the numerous modifications of apparatus which are met with in the journals, as well as in the regular treatises on surgery. Many of these are excellent in their way, and, if every practitioner was provided with them, they would prove valuable; but, as all the indications can be answered, in the great majority of the fractures of the thigh, by the apparatus of Desault, and as this is available everywhere, it becomes a matter of importance that this should be improved. Whether the modifications described above will prove as valuable in other hands remains to be tried; but, so far as the experience of the writer extends, he has found that there is an entire absence of pain from pressure, abrasion, or excoriation, so common in the ordinary method; that there is no necessity for slackening bandages, for the purpose of bathing the parts or intercepting soft substances; that, hence, union will be more certain and speedy, all motion of the bones being prevented; and that extension, sufficient to overcome the muscular contraction, can be maintained constantly by the tourniquet, and shortening of the limb prevented.

Case II.—*Fibrous Tumour in the substance of the Uterus.*—I was requested in the autumn of 1844 to visit Mrs. B., æt. forty, of bilious temperament, general health good. Had given birth to a child, now living, when she was twenty-one years of age. Was married about four years previous to this visit. Found her suffering intensely from strangury, being the period of her menstrual flow; was informed that for several years she invariably suffered during this period, for which she took anodynes. Made an examination per vaginam, and found a large tumour, nearly filling the superior strait of the pelvis, extending from above the umbilicus down to within an inch of the perineum. I found the os tincæ on the anterior part of the tumour about an inch from its lower extremity; its form was changed, being extended from side to side about one and a half inches. I could pass the female catheter its entire length into the cavity of the uterus. I introduced the speculum uteri, and found that the tumour was covered by mucous membrane, and that instead of the pure white which is characteristic of fibrous tumour, it presented the normal colour of mucous membrane covering the uterus. Having ascertained these facts, I had no difficulty in deciding that this was a case of fibrous tumour in the substance of the uterus, occupying its posterior wall; the whole organ having been distended by this adventitious growth. Having introduced the catheter, to relieve the bladder, I gave her anodynes with diuretics. After the menstrual period had passed, I prescribed laxatives and Lugol's solution, in the hope that the increase of the tumour might be prevented. At this time I did not think of any operation, as Dupuytren, after his extensive experience, as well as other writers, pronounce this variety of tumour beyond the reach of operative means. Soon after my return to the country from Philadelphia, in the spring of 1845, I was again summoned to my patient; found the tumour increased in size, and the mechanical obstruction so great that she had to use her fingers in aid of defecation, and had increased difficulty in voiding her urine, which passed in small quantities during severe and protracted efforts.

I again explored the parts thoroughly, found them as in first examination, except that the tumour had increased in all its dimensions, and measured, as nearly as I could ascertain, about fourteen inches in its long diameter, being spindle-shaped, while its short diameters were those of the upper strait of the pelvis, which it filled. Finding this increase in bulk, and there being every reason to believe that it would continue to grow, and thus entirely occlude the passages for the urine and fæces, I determined to resort to operative means, although without precedent to guide me. Supposing that the areolar tissue between the tumour and uterine substances might be found abundant and loose, I concluded to make an effort to draw the uterus down as near as possible to the os externum, make an incision upon the tumour, and with the aid of fingers, scalpel handle, and occasionally the edge of the scalpel, I might be able to divest it of its uterine covering and remove it. Having made every preparation, I succeeded in bringing down the uterus by the aid of a large tenaculum; made an incision, but found the cellular tissue so condensed that

it was manifest the tumour could not be removed in this way. I then made very free and large incisions into the tumour, with the expectation that the imperfectly organized mass would become atrophied by the discharges which must ensue from these incisions, since union by adhesion or granulation could not here take place. Success beyond my most sanguine expectations followed this procedure, the tumour diminished in size, and I have not been called to prescribe in the case or to pass the catheter during the last five years.

Cases III. and IV.—*Trachcotomy for the removal of Foreign Bodies.*—In these cases, the one aged one year, the other three and a half years, the operation was performed in the usual manner with entire relief of symptoms of impending suffocation, and yet the foreign bodies were not discharged or extracted through the opening made. In the case of the youngest child, a part of a grain of roasted coffee had been drawn into the windpipe with the inspired air, and immediately gave rise to the characteristic symptoms of foreign body in the trachea; the paroxysms recurring more frequently, and becoming more alarming in their character, the operation was performed at the end of forty-two hours after the accident. The coffee not appearing at the opening made, a probe was cautiously passed down into the bronchii and up through the rima, but the foreign body was not discovered. Having observed the patient to swallow immediately after the opening was made, the mother was directed to examine the diapers, and thus next day was found the undigested piece of roasted coffee, which doubtless had been located above the opening and was carried up into the pharynx and swallowed as soon as the spasm of the muscles of the larynx was overcome by the free admission of air below. In the other case, a piece of raw sweet potato had been taken into the windpipe during violent inspiratory efforts when at play with other children. There was immediate dyspnœa, threatened suffocation and livid countenance; these symptoms subsiding, the parents supposed that there had merely been an arrest of the body in the œsophagus. The paroxysm recurred, however, when they sent for their physician, J. Weaver, M. D., of York County, who requested that I should be sent for, as an operation, in his opinion, was the only means of relief. We found indubitable evidence of the presence of the foreign body in the *trachea*, and the low operation was performed in the usual manner. In this case I observed that a moment after the opening was made in the trachea, the child swallowed, and exclaimed "Now it is out." All the symptoms of foreign body in the windpipe disappeared. The probe was, however, carefully introduced, as in the other case, and with the same results. Both cases had a rapid recovery, and did well.

Case V.—During the same season (the fall of 1846) in which these operations were performed, a boy aged six years was brought to me from York County, who had a few days previously, whilst at play, drawn a grain of corn into his trachea. The operation was performed by opening the trachea, and

the grain of corn was immediately expelled by the violent action of the chest in expelling the pent up air.

In performing this operation for the removal of foreign bodies, every surgeon must have observed this violent expulsion of the accumulated air within the lungs, not only through the opening made but also the natural passage through the larynx, in consequence of the removal of all spasmodic closure there, as soon as the opening is made. Foreign bodies, then, which are located above the opening would naturally be carried by the upward current into the pharynx and swallowed, whilst those below would most likely be expelled at the new orifice in the windpipe.

In performing this operation for the removal of foreign bodies, I make the opening into the trachea on the left side at about two lines from the mesial line, so that the orifice is completely closed by the overlaying muscles and fascia. I was led to adopt this method after having heard of two fatal cases from effusion of blood into the trachea after the wound was closed externally. Supposing this valvular closure sufficient to prevent such a result, after waiting for from half an hour to an hour after the operation, I permanently closed the wound, and union by primary adhesion usually is the result. In one of my cases there was secondary bleeding a few hours after closure, but the blood passed outwardly, the respiration not being impeded in the slightest degree.

Case VI. *Luxation of the Shoulder-Joint.*—W. C., a large muscular man, in falling to the ground from his feet and attempting to save himself by throwing out his right arm, dislocated the head of the humerus into the axilla. Reduction, by the aid of two assistants, was accomplished in the following manner: A piece of muslin three yards long and one wide was gathered up in the hands lengthwise and the central part applied to the axilla, thence upwards anteriorly and posteriorly to the top of the shoulder close to the neck, where it was crossed, binding the shoulder firmly and fixing the head of the scapula immovably. From this point, one remaining portion of the band was carried to the sound side anteriorly and the other posteriorly, and given to an assistant for counter-extension. To the other assistant I gave the end of a towel, which was attached to the arm for extension. I took my station behind the patient, placing my fist of the left hand in the axilla, and seized the lower end of the humerus with my right hand. I then directed the assistants to make slow, steady and firm traction, and so soon as I found the head of the bone sufficiently down, I suddenly depressed the lower end of the humerus, my fist acting as a fulcrum, and the head of the bone resumed its place in the glenoid cavity.

Having experienced great difficulties in effecting reduction in my first case of luxation of this joint, owing to the mobility of the shoulder, which permitted the glenoid cavity to maintain its abnormally relative position to the head of the bone, during the application of the extending and counter-extending forces, as usually applied, I was led to adopt this plan, and with invariable success

without resort to bleeding or nauseants. By this method of applying the counter-extending bandage, besides fixing the shoulder, and obtaining complete command over this and the arm, the bandage in front as it crosses the neck, presses upon the windpipe of the patient, producing the sensation of choking, which throws him momentarily off his guard and the head of the bone readily slips into its place. Having taught this method for several years in the college, former pupils now in the profession have reported like success in their cases, by this plan of fixing the shoulder and withdrawing the attention of the patient from the seat of injury, at the moment when reduction is made.

Art. VIII.—*Remarks on the Treatment of Cholera.* By Richard McSherry, M. D., U. S. Navy.

It becomes sometimes as much a matter of duty for a medical man engaged in the active duties of his profession to contribute his mite to the general stock of knowledge by confirming or disproving the statements of others as by advancing theoretic or practical novelties. Whenever a formidable epidemic invades a civilized community, it is due to science and humanity that those who have to contend with it should give to the world the result of their experience; and to do the profession justice, it must be admitted that no class of men can be found to bestow more freely the precious results of their hard-earned knowledge. But it may happen that the very "multitude of counsellors" will confuse the mind of the student who is trying to fortify himself with the experience of others before it devolves on him to meet the enemy front to front; he has so many expedients to resort to, and is armed with so many weapons, that he runs the risk of being overthrown before he can determine which to choose. One plausible writer has told him that in cholera asphyxia opium is the sovereign remedy; another says no, that mercury is; another says camphor, quinine, ammonia, acetate of lead, or some other of the "thousand-and-one" remedies mentioned is most to be relied on, each directing something different from the rest, confusing inquirers to such an extent that it is little wonder if some practitioners jumble together not only in their own brains but in the stomachs of their patients all of these heterogeneous materials at once. Now it is an opprobrium, *maxime deflendum*, that to this day there is no systematic course concurred in generally by the profession in the treatment of this disease. The question may be asked here, Whether any treatment deserves to be considered scientific as heretofore practiced, or whether it may not all be called empirical? My own conviction, founded on experience, is that notwithstanding too many of our brethren are ready to be deluded by charcoal and sulphur specifics, others, taking certain rational data, use certain remedies for

definite ends, which, when accomplished, tend to the cure of the patient. Cholera has its philosophy, and although in its nature there are depths not yet fathomed by human wisdom and research, yet we find that it produces certain obvious conditions in the system, which conditions we may change and modify by familiar agents. This is scientific practice.

Among the many able documents which have proceeded from the medical press in relation to the disease in question, I beg leave to refer to two which have appeared in this journal as embodying, in manner clear and unencumbered, nearly all the information that the physician *can reduce to practice at the bedside.* I cite the article of Dr. Shanks in the No. for July, 1849, and that of Dr. Gayley in the number for the same month, 1850. These two gentlemen both treated their cases with remarkable success, and although there was considerable difference in the mode of treatment, both kept steadily in view the same object, viz., the unlocking of a thorough congestion of the greatest gland in the body. The liver, it is true, is not alone in the congestion, but it stands like a great dam in the circulation between the portal system and the heart, thus causing inordinate fulness or congestion in the vessels of the stomach and bowels. By a process of exosmose, says Dr. Gayley, the watery parts of the blood find their way into the intestinal tube and pass off from the stomach and bowels, carrying in their downward course the epithelial scales washed from the surface of the mucous membrane, and giving the discharges the appearance of rice water. Now the mere arrest of these discharges while the function of the liver is totally suspended is not sufficient to cure the disease; the floodgates of the dam must be opened; a scavenger must be sent to clear out the closed channels of the obstructed and obstructing organ. When this is effected, we have sufficient concurring testimony to prove that the disease is overcome. Dr. Shanks says that in every stage of the disease, with two doubtful exceptions, "when bilious discharges from the bowels were obtained, recovery speedily and certainly took place." Dr. Gayley, premising that the great desideratum is to unlock the secretions of the liver by setting the cells to work, says "that the experience of the profession is that nothing will do this so well as calomel," which he properly designates as the "sheet anchor in this terrible malady." He gave calomel, and calomel alone, and saved thirty-two out of thirty-five cases. Now with such success one might readily be willing to forswear opiates, camphor, brandy, chloroform, etc. But may not adjuvants be essential in certain cases? The most fearful congestions are certainly relieved frequently by large doses of quinine, of opium, etc., and there is every reason to believe that in such cases they have saved life in many instances. Dr. Shanks combined opiates with calomel, because he had been convinced "by years of careful observation of the importance and necessity of the combination in congestive fever of the continued form, and from the pathological likeness of cholera the same practice to some extent was adopted."

In the summer of 1849, being attached to the U. S. Naval Hospital, near Norfolk, in association with Drs. Patton and Whittle of the navy, we received

a number of cases of cholera at various stages of development. We concurred in the treatment which made calomel the "sheet anchor," but did not reject the adjuvants; we used, in short, freely, calomel, opium, and camphor, pounded ice, cups over stomach, &c., and sinapisms and frictions to extremities; in some cases, quinine; and, as of secondary importance, a house prescription, though not peculiar to the house I believe, an anodyne and diffusible stimulant mixture of Hoffman's anodyne, spt. camphor, paregoric, and comp. spt. lavender, and more rarely alum, or sugar of lead. We treated between fifty and sixty cases, one-half of which, it must be understood, did not get beyond the premonitory, or first stage; but the others went on to the distinctive developments. We lost but *two* cases during the summer; one of these came into our hands actually moribund; the other, a noble specimen of the physical man, was brought to us on the evening of the 5th of July, having arrived from Philadelphia with a body of recruits. His disease took him *en route*, on board of the Baltimore boat, where he received no treatment. When brought to the hospital from the receiving ship, we learned he had rejected all medicines from the stomach before fairly swallowed. (By the way, it is to be regretted Dr. Gayley's plan of administering calomel had not been here used, *i. e.*, to apply it dry on the tongue with a little sugar, to be washed down with a small draught of ice water). By the active use of ice and counter-irritants, we succeeded in suspending the vomitings long enough to introduce a few doses of calomel and other medicines. The progress of the case continued unfavourable, and, at 3 o'clock A. M., on the 7th, he died. The *post-mortem* examination presented the usual appearance, except that, I find in my notes, "the coats of the small intestines were considerably injected; within the canal *yellow bile* was mixed with other fluids." In the large intestines, there was no bile, but the dingy fluid usually passed from the bowels made thick and pulpy with the loosened epithelial layer and mucus. We thought our remedies had commenced to act when it was too late to save life, and that, had that bile been started by a single dose of mercury, when he was taken on the boat, the issue might have been entirely different.

But a few days ago I was called, in connection with my father, Dr. Richard McSherry, of this place, to attend an advanced case of cholera, in the person of a lady just arrived from Cincinnati. When we first saw her, she appeared to be verging upon a state of collapse. Her features were pinched and shrunken; large dark circles surrounded her eyes; the pulse could scarcely be distinguished by the most careful examination; she was passing rice-water stools, and vomiting the fluids she drank. The tongue had lost its natural warmth, and she was suffering violent cramps, which last alone induced her to call in a physician. Her general appearance indicated the near approach of death. She was given immediately calomel gr. xx. with laudanum; sinapisms and frictions were applied to the extremities, cups over the stomach, as recommended by Dr. Condie in his notes to Watson's *Practice*, and hot epithems of turpentine. Meantime, we made an extemporaneous prescription of paregoric,

camphor, and sulphuric ether, to be given in brandy and ice p. r. n. as diffusible stimulus and anodyne; this we kept up during the day, with small doses of calomel and opium every hour. The discharges began to be checked in quantity, and at length presented a darker color, with some feculent smell; with this the pulse improved, though the patient was not aware of any improvement. The next day, as the stools were still frequent and watery, we gave calomel and quinine, every two hours, in doses of gr. iij each, alternated with sugar of lead and opium, in the doses recommended by Dr. Condie. By next morning, the stools were decidedly bilious, and, as the mouth was touched, the mercury was stopped. Our patient, though free from the cholera, suffers greatly with excessive nausea, which seems to be owing to a secretion of viliated bile collecting in the stomach and bowels; mild emetics of warm water and salt give very temporary relief by bringing off some of the bile. I gave her one or two doses of castor oil and turpentine, as she complained of a most uncomfortable feeling of fulness in the abdomen. The action of the turpentine was followed by the most painful micturition, to which, she tells me, she is subject at times when in her ordinary health, which at best is not very good. My friend, Dr. E. B. Pendleton, of this place, saw the case with us. Her convalescence is fairly established, this being the sixth day of our attendance.

Martinsburg, Va., *July 19th*, 1850.

Art. IX.—*Poisoning by Corrosive Sublimate.* By H. W. Williams, M. D. (Read before the Boston Society for Medical Observation, August 19, 1850.)

The following report of a recent case of death, after the ingestion of a solution of corrosive sublimate, is interesting from the insignificance of the pathological alterations exhibited upon post-mortem examination.

I was called about noon on Monday, 12*th August*, to see L. B. R., aged 42, mason; and was informed that he had purposely swallowed a solution of corrosive sublimate. On my way to the house, I learned that he had taken about an ounce of a solution, containing thirty grains to the ounce, and that about half an hour had elapsed since it was swallowed. Was told that he vomited in ten minutes after the poison was taken, and that an emetic was soon after administered by the apothecary who sold the solution, as also one egg. Another egg had been given him by his wife before I saw him. He had vomited several times, in all about six ounces. The matters vomited appeared to consist of mucus and the egg swallowed, with some dark masses resembling sputa except in having a dull lead tinge.

I administered the whites of three more eggs, and whilst others were being

procured, gave some flour and water. Three more eggs were brought and given, vomiting having taken place since the previous remedies had been swallowed. Within half an hour he vomited several times, and I repeatedly gave quantities of flour and water.

I learned from his wife that his habits were intemperate, that he had eaten little for two or three days, and nothing on that morning.

He stated that he took the solution after stirring it in a tumbler with a little sugar.

I found him rolling uneasily about the bed, complaining of severe headache, and great pain in the stomach. When asked to point out the seat of the pain, he passed his hand over the whole of the upper portion of the abdomen. When asked if he had pain in throat, he replied, a little but not much. The fauces were considerably injected. No tenderness on pressure in any part of abdomen. Conjunctiva injected; pupils natural, and sensitive to light. Face rather collapsed and covered with cold perspiration. Tongue nearly natural in aspect, but cool. Hands and feet rather livid, shrunken, and cold. Pulse very rapid and small. Respiration natural. He had had several dejections, consisting of a dark fluid, with some small lumps of dark green fæces, previous to my seeing him.

Vomiting continued till about one P. M., the matters ejected consisting principally of the substances swallowed. Twice, portions of blood were mixed with the matters thrown off.

I directed flaxseed tea to be prepared, and gave it freely. It was eagerly taken, the patient complaining of intense thirst. His aspect is precisely that of a patient attacked by cholera, but who has not yet reached the stage of perfect collapse. Pulse could not be felt at wrist; at the carotids and heart it was 168, feeble, regular. He rolled so incessantly from side to side that it was difficult to distinguish pulsation, even at heart. He complained of a burning sensation in abdomen.

Dejections were frequent, and towards two o'clock several followed each other at intervals of only two or three minutes. They continued to exhibit similar appearances, being almost entirely dark fluid; but several of the last had a quantity of flakes, apparently of mucus mingled with them. He got out of bed without difficulty, but said he felt easier when lying down, as he was dizzy whenever he lifted his head from the pillow. Complained of cramp in left leg.

I ordered bottles of hot water to be placed at his feet, and directed that his limbs should be warmly covered. Directed that two more eggs should be given, and followed, after an interval, by draughts of flaxseed tea.

Again saw him at three P. M. Pulse had returned at wrist; 140, feeble, regular as to frequency, but varying in strength. Face rather less collapsed. Feels less pain. He has vomited the flaxseed tea, and had several small bloody fluid dejections containing small masses of coagulated albumen. They were free from fæcal odor, but had the fleshy smell, sometimes observed in

similar dejections in cases of cholera. He still rolls uneasily about the bed. Conjunctiva less injected. Tongue natural in aspect but cold. Extremities still livid and clammy, but less so than when I last saw him. Face free from perspiration. Great thirst. No tenderness of abdomen. Ordered small quantities of rice water to be given to relieve thirst. Pulv. opii gr. ½ every hour till pain is relieved.

Six P. M. Pulse more feeble than at 3 o'clock. Has no pain. Dejections, of the same dysenteric character, have continued frequent. He has persisted in drinking large quantities of water, and has therefore vomited copiously. General aspect unchanged. Ordered more attention to limit the amount of drink, and pulv. opii gr. ½ every half hour till he becomes quiet.

Nine P. M. Pulse fuller, 118. Fingers still corrugated and cold; tongue cool, natural in colour; face dry; conjunctiva natural. Pupils rather contracted. He has appeared inclined to dose after taking the opium, but has not slept. Great fœtor of breath. His wife says she has previously noticed this, but never in so great a degree. He has no pain, but is very restless, and has the aspect of a patient suffering an attack of delirium tremens. He formerly had an attack, induced by his having fractured a limb. No tenderness of abdomen, but it feels extremely hard on pressure, though it is not at all distended. Passes very little urine. Drinks have still been placed within his reach, and he has vomited freely. Has had several dejections, three at least, since last visit. Ordered bits of ice to be placed in his mouth instead of permitting him to drink. Pulv. opii gr. i; to be repeated every hour if he does not sleep.

August 13*th*. Face less collapsed; hands a little less shrivelled, but cold and clammy. He drank during the night from the bottles placed at his feet. Slept a little towards morning. Pulse 98, a little fuller than last evening. Tongue clean, warm; no tenderness or pain in abdomen. Has had but one dejection, but has vomited several times. Has a sensation of phlegm in throat, and has frequently expectorated. The sputa appear tough, and are free from any tinge of blood. Ordered rice water to be given as an enema, with morph. sulph. gr. ¼. If at the end of an hour he is still awake and restless, the enema to be repeated with morph. sulph. gr. ½.

One P. M. Patient disliked the enema, and but a small portion was given, which was retained. No attempt was made to repeat it. He has not slept, and his aspect is still that of delirium tremens. Pulse 120, very feeble; pupils contracted; conjunctiva natural; face not moist; tongue a little loaded with a brownish coat; hands and feet cold and moist; no dejections. He has been allowed to drink water, contrary to my express directions, and has vomited as often as he drank. Ordered morph. sulph. gr. ½, to be given in solution by the mouth, and repeated if ineffectual.

Nine P. M. No tenderness of abdomen. Some small, dark, fluid dejections. He has not been properly watched, and has constantly been jumping out of bed in a state of excitement. Has vomited. General aspect unaltered.

Slight brownish fur on tongue. Extremities cold. Ordered hot bricks to be placed about his limbs. Morph. to be increased to three-quarters of a grain, and repeated if requisite.

14*th*. Has not been watched during the night, but sometimes left alone. He has, therefore, been restless. Pulse 140, more feeble. Tongue a little dry, slightly furred. Has some tremulousness of hands. Rises for his dejections with more difficulty. Has passed urine with his dejections, but with difficulty, and in small quantity. Several small dejections, containing a few small lumps of fæcal matter. Emesis has occurred a number of times. He seems inclined to spit quite frequently. I ordered that he should not be left alone. The room to be darkened, and morph. sulph. gr. i to be given.

One P. M. Has not slept. Face has a more collapsed aspect. Pupils moderately contracted. Tongue as this morning. Pulse 94. No pain. No dejections. Has vomited greenish fluid. He has not been watched, and is more delirious. Thinks persons are concealed near his chamber, and persists in rising from bed to eject them, as soon as he is left alone; but he is easily controlled, and answers rationally when spoken to. He has some desire for food, and, as his stomach rejected fluids, I allowed him to have a small piece of biscuit, which he said was good.

On calling at six P. M., I was informed that he died about half past four. Soon after I left him, he went down stairs, and, on being induced to return, he fell, as his wife stated, in a fit. This was recovered from, and he died very tranquilly.

Autopsy twenty-five hours after death.—Present, Drs. Storer, Dalton, Buckingham, and Thayer.

Brain healthy in aspect and consistence. The falx cerebri was wanting for the distance of about an inch at its anterior extremity, and the two hemispheres were united at this point. Considerable fluid was effused beneath arachnoid, but no effusion into the ventricles. Heart and lungs healthy; the latter remarkably so. Liver pale, rather friable. Spleen shrivelled, as in cases of death from cholera. The stomach was contracted, for the extent of about two inches, at its middle portion, having the form of a dumb-bell. The contracted portion was about two fingers in width. It contained a small quantity of bright yellow fluid, having the consistence of thin gruel. Its larger and smaller curvatures presented patches of dotted injection, of a bright crimson tint. The dots could be seen, on close inspection, to be made up of vessels. No ulceration, and no ecchymosis. Mucous membrane a little softened in the neighbourhood of the most vivid red patches. Patches of beautifully arborescent vascularity were observed at intervals along the whole course of the small intestine, but its mucous membrane retained its normal consistence. Large intestine healthy. No ulceration in any portion of intestinal canal. Lower portion of œsophagus not injected, nor its lining membrane softened. Bladder contracted, containing about a drachm of turbid urine, which Dr. Dalton found, on examination with the microscope, was ren-

dered cloudy by the presence of a large quantity of epithelium scales, and similar to the urine found in the bladder after death from cholera. Other organs healthy.

ART. X.—*A case of Tumour in the Bladder.* By C. J. CLARK, M. D., of Jacksonville, Alabama.

CALLY DENSON, farmer, a large man, aged sixty-two, apparently of good constitution, had enjoyed robust health, until about two years ago, when he began to suffer from what he considered symptoms of "stone in the bladder." He voided urine with difficulty, having to strain hard to make it pass. By degrees he had to make water more frequently than usual, and suffered from constant sense of uneasiness about the bladder. These symptoms grew gradually a little worse in the course of the first year, during which time he used various domestic remedies for "gravel." After awhile he began to be troubled with constipation, for which he took cathartics; subsequently had hemorrhoids. About the end of the first year he began to notice "a hardness" in his abdomen just above the pubis, which gradually increased until he could distinguish a large roundish tumour. This he took to be an "obstruction in the bowels," as he had constantly to take some laxative to keep his bowels open. By this time he had great difficulty in voiding urine, and frequent calls to do so. Says that the urine would sometimes suddenly stop while flowing, then flow again by changing his position; and that he was frequently in the habit of going to the corner of the fence and placing the perineum against the end of a rail and making pressure, which enabled him to void urine when he could not do it otherwise. Has frequently had an itching sensation about the end of the urethra. Had very copious hemorrhage from the bowels a few months ago, probably from the rupture of a hemorrhoidal vein. Since then has not suffered much with the piles. Applied to a quack, who told him that the tumour in his hypogastrium was caused by his "melt," which had got down there; and that the hemorrhage from the bowels "came from the melt."

His urine has never presented anything remarkable; has been higher coloured at some times than at others. Has never passed any gravel. Has been for two weeks taking a nostrum from another quack, who promised to dissolve the stone in his bladder and thus cure him. After taking this a few days, he passed some blood and a large amount of mucus in his urine. This "solvent," I happen to know, is a strong solution of a peculiar kind of caustic potash, called in this State and Tennessee "wetfire," where it has obtained some celebrity in the hands of certain empirics as a caustic and solvent for urinary calculi.

Some three weeks ago Denson began to have slight fevers, and to suffer more than usual with a pain through the tumour passing down towards the perineum. The pain has continued to grow worse, the desire to void urine more constant and urgent, until within the last week his sufferings have become almost intolerable.

Jan. 1*st*, 1845. To-day I saw the patient for the first time, and obtained the foregoing history from him. He now suffers a constant, dull, heavy, aching pain through the tumour and perineum. He has to void urine every hour, and sometimes oftener; and it is done with great pain and straining, only a small quantity being passed at each effort. The flow of urine is assisted by pressing upwards and backwards on the abdominal tumour. Has constant fever rather of a typhoid character; some thirst; no alvine evacuations without taking medicine, and then it requires great straining to empty the bowels; countenance dejected; very low spirited; skin dry and hot; tongue rather dry, with red edges and thick fur on top; cannot turn in the bed without great pain; testicles and spermatic cord painful and much swollen. Upon examining his abdomen, I found a large tumour rising from the pelvis up to the umbilicus. Its surface felt perfectly even and smooth through the abdominal walls. I could not detect any elasticity, yet there was not a distinct sense of hardness. On introducing a finger into the rectum, a large tumour was felt filling completely the superior strait and upper part of the pelvis. It felt smooth and uniform, and distinctly elastic. I next proceeded to introduce a catheter. The instrument was arrested about the membranous portion of the urethra. At this point the passage was very sensitive, and the introduction of the instrument caused great suffering. After repeated fruitless efforts with different-sized cathéters, I took a very small bougie, and succeeded in passing it through what I took to be a stricture, and into the bladder. The bougie tapered, and when the larger part came to the strictured point in the urethra it would pass no further, consequently the end of the bougie merely reached the cavity of the bladder, without passing any distance into it. As the patient had suffered greatly from the attempts at catheterism, in consequence of the inflamed and highly sensitive condition of the urethra, I determined to put him on a course to relieve these symptoms, hoping afterwards to succeed in the introduction of the catheter.

I ordered him to sit in a warm hip-bath until it caused a feeling of faintness and relaxation, and repeat as often as his strength will bear it; a laxative to move the bowels: infusum diosmæ with spts. etheri nitrosi; also some carbonate of soda; fomentations to abdomen.

After weighing all the symptoms and probabilities, I came to the conclusion that it must be one of those cases of retention of urine and enormously distended bladder that occasionally occur in old men. It is true he had passed more or less urine every day in small quantities at a time. He was of the opinion that the whole amount passed each day was small, and there had been difficulty in voiding it for two years. And we know that old men sometimes suffer

great distension of the bladder notwithstanding they pass some urine from day to day, but there is not so much passed as is secreted. I was further strengthened in my diagnosis from the fact that the abdominal tumour was perfectly uniform on its surface, that it presented precisely the shape of the fundus of the bladder greatly exaggerated, and though not elastic it did not give a sense of hardness to the touch. And further, the pelvic tumour examined through the rectum presented the shape of the "*bas fond*" greatly distended, and was highly elastic. The obstruction in the urethra I took to be a stricture, and supposed from several of the symptoms which have been previously narrated that there might also be a calculus in the bladder.

Jan. 2*d.* Says he feels better; that the warm bath has soothed him greatly, affording more relief than anything he has done before.

Is very feeble; had considerable fever last night; laxative has operated; had much straining at stool; has as much difficulty in passing urine as ever, but it is not of so high a colour. He insisted that I should not attempt to introduce the catheter for twenty-four hours longer, and allow him to continue the treatment prescribed on yesterday.

3*d.* Found him no better; had considerable fever last night; is more feeble than on yesterday; was much exhausted this morning on coming out of the bath. I now attempted to introduce the catheter again, but after repeated and persevering efforts failed. I next tried to pass the small bougie, but could not even succeed with that. I now sent for Doctors Francis and Pelham in consultation. The Doctors had great difficulty in satisfying themselves as to the nature of the affection. Thought there might be some kind of tumour in the bladder; but upon examining the elasticity of the pelvic portion, it was agreed that it must be a case of retention of urine; and at all events, if there was a tumour within the bladder, that it contained a fluid; and further, that as the symptoms were urgent and the bladder could not be expected to stand the great distension much longer, the only thing offering any prospect of benefit was puncturing through the rectum. He was accordingly placed across the bed, with his hips resting on the edge and his feet drawn up. Kneeling before him, I passed the index finger of my left hand up the rectum to the tumour. Taking a small trocar and canula in the other hand, I guided it up, and placing it against the tumour about $\frac{3}{4}$ths of an inch from its anterior edge, pushed it in. I withdrew the trocar, and, lo! instead of urine, dark red, and rather thick blood poured slowly through the canula!! The blood discharged was inodorous, and after standing a long time seemed a little thicker, but did not coagulate. Fully a quart was discharged without producing any effect whatever on the patient's pulse. The canula was withdrawn, and upon examination the pelvic tumour was in a measure gone and the parts flaccid. Dr. Pelham now suggested that this might be a large hemorrhoidal tumour that we had evacuated, and that we might now succeed in introducing the catheter. He then took a strong silver catheter, and after a persevering effort succeeded in passing it into the bladder, when to our astonishment, instead of urine, here came the

same dark red blood again!! The nature of the affection was now revealed. We had a large bloody tumour of some kind filling the bladder and distending it until the *bas fond* filled the pelvis and the base extended to the umbilicus, being as large as the uterus of a woman at the seventh month of pregnancy. After about a pint of blood was discharged it ceased flowing, but upon moving the catheter a little it commenced again. I now took hold of the instrument and found I could move it about through the mass, apparently breaking it up; and it seemed to require but little more force to break it up than would a mass of coagulated blood. At each time the instrument was moved and a fresh part broken the blood flowed more rapidly. Some parts seemed to be of a firmer structure than others, and could not be broken down with the catheter, though none gave the feeling of ossific or cartilaginous hardness. In all about two quarts of this dark red blood were removed, lessening the size of the tumour considerably, but still leaving it very large. The evacuation of the blood did not appear to have any effect on the patient's pulse or strength. He said he felt easier and that the weight and pain were less. We now left him under the use of fomentations and anodynes until to-morrow.

4*th*. Rested somewhat better; has suffered much less pain. Has not been compelled to evacuate urine so freely, but still has great difficulty. The urethra became plugged up once or twice from clots of blood. Is growing more feeble; had an alvine evacuation without so much straining as heretofore. At eleven o'clock to-day had a long shivering fit; his pulse sank, and he became covered with clammy perspiration. Says he has no pain now except when he moves.

5*th*. Had another rigor last night, and one this morning before day. Is greatly prostrated; pulse feeble; bathed in cold clammy perspiration; can scarcely speak audibly.

6*th*. Died this morning. His wife would not allow a post-mortem examination.

This rather curious and perplexing case fell into my hands a few years ago. It is now published partly for the purpose of putting it on record as a singular case; and partly to prepare my professional brethren against similar difficulties in making out a diagnosis, should any of them meet with a case of the kind. It is much to be regretted that in many of our most interesting cases we are debarred the advantages of post-mortem examinations by the people for whose benefit we live and labour.

[There can be but little doubt that the tumour in the bladder in this case was a malignant fungous growth, but it is greatly to be lamented that a post-mortem examination was not allowed.—Editor.]

ART. XI.—*Cases of Puerperal Convulsions.* By JOHN P. LITTLE, M. D., Richmond, Virginia.

THE following cases were met with whilst I was a country practitioner in Orange county, Virginia.

In forty-five cases of labour, three cases of this formidable disease occurred: these are reported in the order in which they presented; and to them is added another case, illustrating the power of the human system to resist without apparent suffering, or even sympathy, the delay and danger of a protracted and difficult labour.

CASE I.—A young, strong negro woman (servant to Mrs. Roach, of Orange Co.), pregnant with her first child, was seized with a convulsion early on the morning of the 15th of April 1847. I reached her at sunrise, an hour after its occurrence, and found her lying unconsciously, breathing stertorously, her pulse full and hard and the pupils dilated. She could be roused with difficulty, and answered at random a question asked her. A violent convulsion seized her as I sat beside her bed; it was preceded by the usual symptoms of uneasiness of body, rolling of the eyes, irregularity of the pulse, &c.; the face became distorted, the eyes turned up, foam flew from the lips, and the whole muscular system was violently convulsed. Immediately the arm was tied up, and as soon as the convulsive efforts allowed it, a vein was opened by large orifice; the amount of blood was not measured, as effect alone must regulate the amount of bleeding in such cases; she was bled into a state of semi-consciousness. Antispasmodics and purgatives were administered. The mouth of the womb was open, as in the commencement of labour; the lips thick and rigid, scarcely if at all dilated under the contractions of the womb. There was every prospect of a difficult, tedious, and dangerous labour. Another and another convulsion appeared, with a shorter interval as the labour slowly advanced; between them she lay comatose.

Every means was used to relax the mouth of the womb, to hasten the labour, and to avert the danger to the system from the shock of the convulsions. Warm fomentations; dilatation with the fingers; bleeding largely twice repeated, according to the indications of the pulse and the convulsion, and each time with good effect.

The free depletion by venesections and purgatives mitigated the severity, yet the continuance of the labour increased the frequency of the convulsions.

The head, a very large one, was impacted in the superior strait; the os uteri although rigid was somewhat open; the womb was acting strongly and the woman in convulsions. I decided to open the head, and deliver as rapidly as possible. Dr. Graves being called in consultation and agreeing with me, I proceeded to deliver; placing the woman in the usual position, the head was opened and as much as possible of the brain removed; then, compressing the bones of the cranium, with much difficulty the body of a very large fœtus was withdrawn.

A violent convulsion occurred during the delivery, and another preceded it; making in all ten violent convulsions during the twelve hours that elapsed from the occurrence of the first one to the delivery. The womb seemed to have exhausted itself; it remained relaxed, and hemorrhage came on; by stimulating the womb and by injection of infusion of ergot this tendency to flooding was overcome; not, however, until she had lost much blood. I hoped

that with the delivery the convulsions would cease; as another fit occurred, and she still lay comatose, I shaved the head and cupped freely the nape of the neck; the blood flowed very freely from the scarifications.

She passed the night in a comatose condition; symptoms of another fit showing themselves, and the pulse justifying it, she was again bled on the second day of attendance; on this occasion she flinched from the lancet. Her head was now covered with a blister (one had after cupping been applied to the nape), and after it had freely drawn, as she still lay in a state of stupor, a warm poultice was applied over the whole scalp, having previously clipped the blisters and covered the poultice with spirits of turpentine. This was done on the afternoon of the second. She exhibited symptoms of uneasiness at this application; yet it was not until suppuration had been freely established over the whole scalp (although antispasmodics and purgatives with diuretics had been freely given and with effect), that she, on the morning of the third day after her delivery, opened her eyes and appeared conscious. She was not able to speak, yet made known by signs that she wanted drink and food; it was most singular to see her eye and gesture asking to satisfy her appetite, yet possessing neither speech nor hearing. As there was still a tendency to stupor, and as all the faculties had not returned, the applications to the head to encourage suppuration were still kept up.

Speech and hearing and intellect gradually returned; in the course of four or five days she could give some account of herself; and I found that she was utterly unconscious of all the circumstances connected with her labour. The lochial discharge was encouraged by warm fomentations and attention to cleanliness. She made a rapid and perfect recovery; and, undeterred by the failure and danger of her first experiment, has since borne with safety to herself living children.

In reviewing the case, I regret that I did not cup earlier, and apply cold to the head; it should be done in all such cases. Of the quantity of blood lost I cannot speak accurately; she was four times bled, there was hemorrhage, and a very free cupping on the nape. The venesections were regulated according to effect, and not according to quantity; and this I esteem the only safe rule of guidance in similar cases.

The two other cases occurred in women who had each borne many children. They had been accustomed to be bled freely during pregnancy, by way of removing hyperæmia; and the bleeding had been either very slight, or altogether omitted before their last labours.

Case II.—A servant (40 years of age, pregnant with her twelfth child, in whom from a tendency to anteversion of the womb her labours had been more and more difficult), was taken with convulsions March 14, 1848.

Her situation not being known, as she lived some distance from her master's house, she lay twenty hours in this condition, having convulsions, and lying comatose between them. I saw her in the tenth, and immediately opened a vein, drawing off some three pints of blood. The convulsion ceased, yet not even semi-consciousness returned. The bladder and rectum were emptied, cathartics were administered, and the head elevated and kept cool.

On examination, the mouth of the womb was found tilted backwards in the upper part of the vagina, and very slightly open. With some difficulty it was brought down, and by assisting each pain, gently opened with the fingers; the head presented, the occiput placed towards the left sacro-iliac junction; the

head was then pushed up, one knee seized, and delivery effected by turning; the child was dead. This was not accomplished until several convulsions had occurred, and a second bleeding, not so large as the first, had been made. She lay comatose; and with the exception of one convulsion after delivery, remained so for two days, and then died. In this case also the scalp was shaved and counter-irritation used. Serious mischief had resulted from absence of medical aid in the commencement, and no subsequent treatment could remove it.

Case III.—Mrs. Jacobs, of middle age, the mother of several children, a woman of strong constitution and robust health. After a few days' indisposition, she was taken with convulsions July 14th, 1849. A physician being called in, she was freely bled, and on their return was again bled.

I was called in consultation on the morning of the 16th; she was then in a convulsion, which made the eighth during the two days of attack. I instantly tied up her arm, and bled freely, until a state of consciousness returned, and she could answer my questions.

On examination, the mouth of the womb was found slightly open, and the head presenting, yet no contractions of the womb were perceived.

She lay as one sleeping heavily, yet could be roused with difficulty. My advice was to stimulate the womb to contract, by dilating the orifice with the finger; if this failed, to use ergot by injection, and to rupture the membranes, turn, and deliver. I have always found it safer to use ergot in this manner than by the mouth; it does not disagree and cause vomiting, and its effects can be obviated by washing out the rectum, if considered necessary. My plan is to give by the rectum the dose usually given by the mouth, repeating it as the indications require; and when given in this manner it appears to excite rather the alternate contractions of the womb, than that peculiar tetanic action following larger doses. Its effects may be guarded by opium given with it; which, while it does not appear to affect the womb's contractions, mitigates the severity of pain. In this case the contractions came on regularly, the membranes were ruptured, and my colleague, losing the opportunity of turning, allowed the head to descend.

The woman, conscious of pain, though not of the cause, struggled and complained. Her pulse rising, and symptoms of convulsions appearing, I reopened the vein, and allowed blood to flow until they ceased, and she became conscious. The contractions came on with force, the instinct of labour seemed to lead the woman to cease her uneasy struggles, and to bear down until delivery was accomplished by the expulsion of a dead child; a tendency to flooding was manifested, and checked by pressure, by injections of ergot, &c.

Her convulsions had not been powerful, and her comatose condition not complete, as she seemed conscious after delivery. I left her in the hands of the attending physician. Convulsive action, however, came on, and stupor, although purgatives and diuretics had been employed; I had the head shaved, blistered and poulticed as in former cases; consciousness returned when the scalp was pouring out serum, and remained. In the four bleedings in this case, half an hundred ounces of blood were lost. There was in none of these cases the profuse perspiration that usually accompanies labour; the want of free sweating is said to be one of the accompanying symptoms of the disease.

Case IV.—A young healthy negro woman (servant to Mr. Hudson, of Culpepper Co.), pregnant with her first child, had been in labour three days when I was summoned in consultation. June 8th, 1847. I found her lying perfectly free from pain, pulse natural and skin cool; without any apparently

bad symptom except the continuance of the labour; the head presented; the membranes were long since ruptured, and the perforator had been used to pierce the head. I first gave ergot by injection, to cause contraction and prevent flooding in delivery; and then broke up the brain and delivered a very large boy. In spite of the ergot, flooding showed itself, and it was necessary to introduce the hand into the womb, turn out the clots, and make pressure within and without; contractions came on and with care were kept up.

The bladder was found enormously distended; the urine had been accumulating during the whole time of labour. So long-continued distension produced atony; and it was some time before the use of the catheter, and of that class of diuretics which act especially on debilitated fibre, as buchu, tinct. cantharidis, &c., could be dispensed with.

She recovered slowly, yet without a bad symptom. I should have supposed this a case where convulsions, or some severe consequent of labour, might have been expected.

Puerperal convulsions or eclampsia is attributed to many causes; to congestion of brain; to irritation of spinal cord, or of excito-motor system of nerves, either directly or sympathetically; to pressure made on sacral nerves, or to toxæmia, caused by pressure of gravid uterus on kidneys, preventing secretion and elimination of urea, and producing a poisonous state of blood.

The most satisfactory opinion to my mind is that its primary cause consists in the hyperæmic condition of system which belongs to pregnancy.

That the contractions of the womb, and the pains of labour, react sympathetically on the nervous centres, causing an increased flow of blood to those cavities, thereby producing convulsive action, and its consequence, stupor. That the presence of the fœtus in utero is, therefore, the proximate cause of convulsions. And that the most judicious plan of treatment consists in the early and free use of the lancet (used according to effect alone), and then in accomplishing the delivery as rapidly as is consistent with the safety of the mother. That, as incident to this treatment, should be used free evacuation of the bladder and rectum; cold to the head; cupping to the nape of the neck; and if the uterus become flaccid and inert, an enema of sp. turpentine, or of ergot, may be administered; the latter especially if hemorrhage be feared.

That if the state of stupor continue after convulsive actions have ceased, counter-irritation over the whole scalp, and even suppuration should be brought on.

Opium has been recommended in large doses by Dr. Robert Lee, and by Dr. Meigs, after free blood-letting, to calm the sympathetic excitement of nervous system.

In none of these cases did I dare make use of it; in fact, the tendency to cerebral congestion and effusion is so great that I should hesitate to use it, and certainly not until the delivery had taken place, as the continuance of parturition would keep up the tendency to convulsions.

The opinion of Burns, that pressure on the sacral nerves is one cause of

convulsions, should have weight enough to cause frequent change of position for our patient. And the proof advanced by Cormack and Simpson of Edinburgh, that albuminous urine accompanies puerperal convulsions; that urea exists in the blood; moreover, that in all such cases there exists very little perspiration, by which elimination of poisonous matter might take place instead of by the kidneys; this is sufficient to justify the use and explain the benefit of diuretics and laxatives in all such cases.

The disease may be averted by preventing its causes; and when it has made its appearance, if not early closely attended throughout, and properly treated, may be considered a disease very much under our control.

ART. XII.—*Notes of a case of Poisoning by Arsenic.* By BENJAMIN W. ROBINSON, M. D., of Fayetteville, N. C.

ON the night of the 8th of November, 1849, I was hurriedly summoned to Mr. Alex. C. Simpson. Found him with a countenance evincing great anxiety and distress, surface cold, pulse extinct, respiration somewhat hurried, and complaining of intense pain, which he referred directly to the epigastrium, with a sense of sinking at the precordia. To allay the pain, which he declared to be insupportable, I was in the act of administering a dose of morphia, when his medical attendant, Doct. Mallett, entered the room. The Dr. agreeing, twelve or fifteen drops of Magendie's solution of sulph. morphia were given. From Dr. Mallett, I learned that he had been called to the patient about ten o'clock that morning, when he was informed that Mr. S. had been sick all the preceding night with nausea, vomiting, thirst, and pain at the pit of the stomach. These symptoms existed at the time of Dr. M's. visit; the patient's pulse was rather small and feeble, which was ascribed to nausea, and he vomited some mucous matters tinged with bile. Dr. M. ordered a mustard poultice to the epigastrium, and a pill consisting of five grs. calomel and 1¼ grs. opium as soon as the stomach could retain it—to be repeated in two hours. Saw him again in the afternoon; was told that during the interval of his visits Mr. S. had had several dark and fetid evacuations from the bowels. Finding his symptoms aggravated, Dr. M. directed a dose of morphia, and left with a promise to see him again after tea. To rally his rapidly failing powers, we gave ammonia and brandy in repeated doses—administered an enema containing brandy and quinine—had frictions practiced with dry mustard—warm applications to extremities, and hot poultices to the abdomen.

A few moments before he expired (which was in less than an hour after I entered the room), he was raised to the sitting posture, and on being laid down gasped a few times. I quickly placed a piece of paper saturated with spirits

of turpentine over the region of the heart, and swept across it the flame of a candle—but that heart had throbbed its last. Here was death by asthenia. Neither coma nor delirium had at any time existed. No vomiting or purging while I was present.

As we rode from the house speculating as to the cause of death in this case, and unable to arrive at a satisfactory solution of the question, it was suggested that a post-mortem examination for our own satisfaction should be proposed to the family, which the doctor promised to make next morning. He did so to Mrs. Simpson, who, after manifesting what was deemed a very natural reluctance, consented. She however subsequently declined permitting it, moved apparently by the repulsive feeling excited in the mind of a near female relative. During the day, suspicions of foul play were rife in the community, and a coroner's jury was summoned to inquire into the facts of the case.

On the morning of the 10th, James T. Gilliam, M. D., William P. Mallett, M. D., James A. McRae, M. D., and myself, were requested to appear before the jury of inquest and institute a post-mortem examination.

Autopsy thirty-eight hours after death.

Nothing peculiar in the appearance of the body. On opening the thoracic and abdominal cavities, a notable degree of preservation and entire absence of cadaveric odour were remarked.

Head. Not examined.

Thorax. Lungs apparently healthy. Right adherent to costal pleura by a band evidently of non-recent formation. Left collapsed. Heart removed, subsequently minutely examined; no evidence of disease, however, could be discovered.

Abdomen. The stomach, duodenum, and some thirty inches of jejunum, showed very decided marks of inflammation. Larger intestines remarkably contracted and pale. Liver, spleen, and kidneys examined superficially, in situ, discovered no abnormal appearance. Bladder contracted and empty. A ligature was tied above the cardiac orifice and another at the point on the intestinal tube, where the diseased appearance ceased and the parts included removed.

Some hours subsequently, the stomach was laid open, and found to contain thirty to forty ounces of reddish-brown bloody-looking fluid with some semi-solid matters. Its inner aspect presented marks of a high degree of inflammation. Numerous erosions of the villous coat varying in size (the largest situated near the cardiac opening must have measured seven or eight lines in length by three to five in breadth) were revealed, in and around which chiefly were patches of white agglutinated particles. A less intense, though very marked redness pervaded that portion of the intestinal canal which had been removed in which no erosions or ulcerations were detected.

A portion of the fluid contents of the stomach, which had been received in a clean vessel, was put into a dish over the fire and evaporated very nearly to dryness. With distilled water, the residuum introduced into a clear Florence

flask was boiled for half an hour and then filtered through paper. Tests were prepared by dissolving sulphate of copper and nitrate of silver respectively, and adding to each solution a solution of ammonia till a precipitate was thrown down and then nearly re-dissolved. To a portion of this filtered liquid in a clean glass a few drops of the ammonio-nitrate of silver test were added, resulting quickly in a light yellow precipitate, which afterwards changed to a brownish colour. To another portion in a separate clean glass, the ammonio-sulphate of copper test being added, produced a green-coloured precipitate—apple green. With another portion we tried Reinsch's test. After adding to it in a tube a few drops of hydrochloric acid—which we had reason to believe was chemically pure—a few pieces of bright copper were dropped in, and the liquid boiled for a few minutes till an iron gray coating was deposited on the copper. The metal was removed, washed and dried, and then placed in another (short) tube and strong heat applied, resulting, however, in no distinct sublimation. With a known solution of arsenic, the copper test was tried with a result agreeing precisely with that just named. A decoction of beef with bright copper was subjected to the same process, but no perceptible change occurred in the metal. The two liquid tests were applied to a known solution of arsenic, and gave results precisely similar to those noted as occurring on their addition to the suspected liquid. Some of the white particles from the stomach, placed on a bit of charcoal, ignited by a blowpipe, gave off a vapour in which the garlic odour was recognized.

It was here suggested that more confidence in the results of our investigations might obtain on the part of the community, if the Reverend Doctor Colton, who was favourably known here as a lecturer and practical chemist, were associated with us. He was accordingly invited, and joined us on the succeeding day.

Second series. Conducted by Mr. Colton. After using the two liquid tests before prepared, with results corresponding with those previously obtained by ourselves, he alkalized two drachms of the suspected liquid with three grains carb. potass., and added two drachms of a solution of sulph. copper (two to five grs.), causing a grass-green precipitate. Water charged with sulphuretted hydrogen gas was added to some of the suspected liquid, producing a yellow colour, which resulted after some hours in a sulphur yellow precipitate. A portion of the green precipitate (suspected arsenite of copper), after being dried on a filter, was put into a tube—similar to that described as Clark's, save that the bulb was relatively larger and stem narrower—with charcoal, and subjected to heat with a spirit-lamp. A ring of iron gray colour and metallic lustre formed in the neck of the tube, to which heat being applied minute distinct crystals sublimed on the cooler part of the stem.* Correlative experiments of the liquid and reduction tests with known arsenic

* Dr. Colton, in his evidence before the court, did not speak of this ring as the reduced metal, but testified to the crystals. The text here is from *our* notes. His were not

gave results corresponding respectively with those just described. Some of the green precipitate (suspected) put into a platina spoon with charcoal under blowpipe heat exhaled the garlic odour, distinctly marked—as also did some of the white particles picked from the stomach treated in the same way.

From these facts, observations, and experiments, we deduced the opinion—and reported to the jury—that Alexander C. Simpson had died from the effects of an irritant poison, and that that poison was arsenic. Other testimony before them tending to inculpate the wife of the deceased, they agreed upon the verdict "that Alexander C. Simpson came to his death by poison received in his stomach, and they are inclined to think that the poison was administered by Mrs. Ann K. Simpson, the wife of the deceased."

Before the warrant issued for her apprehension could be served, she escaped and fled the country, but returned on the eighth of November, 1850, and surrendered herself to the sheriff. On Thursday the fourteenth, she was put upon her trial for murder.

Pending the interval of her return and arraignment, another series of experiments was made with some of the white particles from the stomach which had been received on bibulous paper carefully folded up, enveloped, labelled, and put away. These experiments were conducted by Mr. Samuel J. Hinsdale, a very intelligent and accomplished practical chemist of this place, who was absent from town at the former investigations—Doctor Mallett, Doctor McRae and myself being present and assisting.

Third series. Some of the white particles were put into a tube with a flux of dried carb. potass. (two parts) and charcoal (one part), and subjected to the heat of a spirit-lamp till a well-marked ring of iron gray colour and metallic lustre, presenting on its inner face a distinctly crystalline appearance, was produced: That portion of the tube on which the crust or ring had formed was cut off by a file and placed in a larger test tube, heat applied with the spirit-lamp, and crystals in some abundance deposited on the cooler part of the tube. Distilled water was then added and boiled till the crystals were dissolved. To one portion of this solution, the ammonio-sulph. copper test was added, resulting immediately in a precipitate of greenish colour. To another portion, a few drops of the ammonio-nitr. silver test, with precipitate of light yellow resulting, which shortly changed to a brownish hue. Into a third portion sulphuretted hydrogen gas was introduced, producing quickly a sulphur-yellow colour, and, on being heated and acidulated, giving down a yellow precipitate. Mr. Hinsdale also tried Marsh's test with a satisfactory result, as I learned from him. I was not present during the whole of the experiment.

made at the time, but subsequently. He was certainly understood at the time as agreeing with us in our appreciation of it.

That this had the true characters of *the arsenical ring* confirmed by the correlative experiment with the known arsenious acid, and that in so carefully conducted an experiment as this was it was a condition necessarily precedent to the sublimation of the crystals, I respectfully submit.

Of the medical witnesses, Dr. Mallett and myself only were examined. Rev. Dr. Colton testified to the results of his experiments, corroborating our opinion.

It was in evidence that the prisoner had purchased an ounce of arsenic a few days before Simpson's death. That they did not live happily together. That she acknowledged a fondness for another man—had only married Simpson to get a home—had consulted a fortune-teller about a week before his death, by whom she was told he would not live a week, &c. It was also proved that she had prepared two glasses of syllabub, which he ate at dinner on the day on which he sickened, and at tea had given him a cup of coffee, both presented under circumstances which, being subsequently recurred to, excited suspicion—and that her conduct just after his death betrayed such destitution of proper feeling as to provoke censure.

It was charged in the bill of indictment that she had administered arsenic in the syllabub, and again in the coffee.

Although not in evidence before the court, it might have been proven* that Mr. S. complained of nausea, and vomited soon (probably within half an hour) after dinner. The trial occupied the whole of Thursday and Friday, and was continued till 4 o'clock A. M. on Saturday. After retiring from one to three hours (variously stated), the jury returned a verdict of *Not Guilty.*

Remarks.—It has been a matter of regret to me that other organs—more especially the liver, rectum, and genito-urinary organs—could not have been more particularly examined, but the circumstances and restrictions as to time under which we were placed operated to prevent it.

It was in evidence, and will here be seen, that Reinsch's test was not satisfactorily completed. When it is stated that, having broken some of our tubes, and no more suitable apparatus being immediately available, we were driven to the use of a thin ʒij vial, not longer than two and a half inches, and that our strips of copper were at least an inch long, the reason will be sufficiently obvious. It was laid aside with the purpose of taking it up again, but omitted, as the chemical evidence from other sources was deemed conclusive.

Pert counsel spoke flippantly of "inexpert doctors and chemists." Expertness in the anatomical and chemical manipulations could only have been rightly judged of by a competent observer—as a gratuitious assumption, therefore, it may pass for what it is worth. Whether or not we have betrayed a

* It is very far from my purpose here to impute blame to the counsel for the State, who, for the firmness, faithfulness, and ability exhibited in the discharge of their whole duty, richly deserved the high commendations bestowed on them by those present. It must be remembered, too, that they had but two or three days of a busy week, with other duties pressing heavily, to prepare for the trial so suddenly sprung on them. It is proper, however, to state that I was informed by a gentleman of unimpeachable veracity, that he met Simpson going from dinner on the day referred to—and probably in less than half an hour after he had eaten it—who complained to him of being sick and did vomit. This gentleman, because of his unwillingness to be called to the witness stand, avoided speaking of this fact till the testimony was closed.

want of expertness in arraying an amount and kind of testimony equivalent to irrefragable proof of the existence of and death from arsenic in this case, we prefer to submit to our peers, in the belief that they are somewhat more competent to determine the question than a Bar suddenly learned (on this point) or a Jury astutely picked.

[The medico-legal evidence in this case is entirely conclusive as to the death being produced from poisoning by arsenic. The stomach gives evidence of the action of a corrosive poison; the liquids of the stomach, although not deprived of animal matter, produce with the appropriate reagents signs characteristic of arsenious acid; the reduction test gives a metallic ring, which by the action of heat and air is converted into crystals; these crystals dissolved in water and tested afford precipitates, with proper reagents, which under these circumstances could only result from the presence of arsenic, a chain of evidence in which no links are wanting.—R. B.]

Fayetteville, N. C., *December 2d*, 1850.

Art. XIII.—*Case of Hydrophobia.* By J. Wilson, Jr., M. D.

I have thought that the following case, which occurred in my practice near Holmesburg, Pa., in 1840, should be reported, not because it is expected to throw much light upon the pathology, or lead to a more successful plan of treatment, but as it adds something to our statistics of this terrific disease. I have delayed the report so long, because I thought it desirable to wait and see whether any bad consequences were to result to the other individuals bitten by the dog which inflicted the wound in this case. The following account of the symptoms and of the treatment pursued is transcribed, with but little alteration, from notes made during the progress of the disease.

Charles Baker, aged 20, sanguine temperament, small but robust, and of active habits, having been usually engaged in the laborious occupation of a farmer—came to visit his friends on (Sunday) May 24th, 1840, and amused himself in teasing a little dog—by pinching its tail and other means of annoyance—till the little enraged animal accidentally (?) caught his thumb—whether right or left could not be determined. The sport ceased, the thumb was wrapped up, and soon healed; he went about his business, and no more was thought of the matter till June 17th, two days after hydrophobic symptoms had occurred, when I received the above account.

He returned on Monday, June 15th—three weeks after the accident, said he was unwell, and felt weak, but made no more particular complaint; asked

for some water, and when it was offered to him, pushed it away, saying he could not drink it. He was offered some jelly, but could not eat it. On Tuesday, he tried to drink once in the course of the day, but the attempt created so much pain that he relinquished it.

June 16*th.* Tuesday evening.—At the time of my first visit, he was dull, stupid, and disinclined to say anything; answered questions by monosyllables, though quite rationally; said he had no pain; felt weak and uncomfortable; complained of oppression as if from a heavy weight upon his chest; respiration natural, except that he could not make a very full inspiration; eyes a little red; pulse 70, rather full, natural—attributed his disease to drinking too much iced lemonade on Sunday. There was so little appearance of disease that I should have thought it all pretence, but for the difficulty of suggesting a motive. He was offered some water, when the following phenomena ensued: Anxious respiration, quick and convulsive; a corresponding convulsive movement of the hand in which he held the cup; general trembling and anxiety; compressed nostrils. He succeeded in about half a minute in throwing it into his mouth (as if by an act of desperation) and swallowing a little; when he hurriedly lay down and composed himself. He was afterwards offered a piece of dry bread, which he ate without apparent inconvenience. I felt assured of the presencce of this awful malady; and from the fatal termination of every case, of which I had either heard or read, of the utter hopelessness of the case. (Directed a teaspoonful of laudanum, to be repeated in an hour if necessary. Hydrarg. chlorid. mitis gr. xx.)

17*th.* He was tolerably quiet all night, but did not sleep; still talks rationally; thirst increased; increased dread of water; convulsive movements about the throat, with anxious respiration on the least excitement, as the opening or shutting of the door, a current of air, the admission of a little more light than usual, or the approach of a stranger to his bed; pulse not much altered; no alvine evacuation for three days. (Calomel gr. x; cambogiæ gr. j; morphiæ sulph. gr. ss. every hour till he sleeps or becomes easier. Epispastic to the nucha.) He became more quiet after the second dose of morphia. The cathartic operated well. The blister was fully raised in about five hours from the time of its application. The medicine was administered by sprinkling it upon a piece of bread.

7 *o'clock P. M.*—He swallowed about f℥i of water, with considerable exertion; took the sulphate of morphia seven times in the course of the day; it is said that he showed a disposition to bite. (Blister to be dressed with ungt. hydrargyri; morphiæ sulph. gr. j, to be sprinkled on the blistered surface; mercurial frictions; morphia to be increased gr. j every hour, watching its effects.)

18*th.* 6 *o'clock A. M.*—He was restless all night, profuse perspiration; pulse full, bounding, not very rapid; drinks better.

12 *o'clock M.*—Swallows fluid better; pulse thready; precardiac oppression excessive; some pain in the right arm, which he supposed to arise from

having been bruised by a horse (perhaps he was bitten in the right thumb). (Blister to the epigastrium; small blisters on the right thumb; calomel gr. xv. to be repeated in two hours, unless the first dose produce an evacuation.)

8 *o'clock P. M.*—He swallowed some water naturally this afternoon; appeared much more calm and comfortable; slept about half an hour between two and three o'clock this afternoon; has taken gr. xiv. sulph. of morphia since last evening. (Calomel gr. xv., to produce an evacuation.)

19*th.* Paroxysms are rather more violent; there has been no alvine evacuation since the 17th; he attempted to bite last night? appears to be perfectly harmless; swallows water as well as he did yesterday morning; is more delirious. (Continue the morphia; extr. aconiti gr. ss. every two hours; a cathartic enema.)

20*th.* He is more delirious; hardly recognizes any one; swallows tolerably well; moderate ptyalism; mercurial fetor and slight ulcerations about the roots of the teeth; pulse not so full as yesterday; skin cool and moist; no evacuation since the operation of the enema. There is no appearance of approaching dissolution. (Morphia sulph. gr. j. every two hours, alternating with extract. aconiti, gr. ss; calomel, gr. x.)

Evening.—He was quite delirious—weak—pulse fluttering, occasionally intermitting. The secretion from the mouth (or fauces) was viscid and dark-coloured, having the appearance of a more consistent dark substance diffused through a pearl-coloured liquid. He propelled it to a considerable distance as he lay on his back; it sometimes passed a yard beyond the foot of his bed. There was a peculiar motion about the throat just before he discharged his sputa; somewhat like that produced by the attempt to swallow water; his features were mostly in motion; there was a peculiar motion about the mouth; risus sardonicus occasionally for a few moments at a time; eyes red and glassy; oppression of the stomach. Difficult respiration, irregular, and sometimes intermittent. He would omit to breathe for the time occupied by one, two or three respirations, and then respire rather quickly (pant) for a few minutes. He became less manageable in the course of the evening; was restrained by fastening a sheet loosely across the bed; as soon as he discovered this contrivance (three or four hours before his death), he became outrageous, and continued unmanageable till death terminated his sufferings at 3 o'clock on Sunday morning, June 21st, 1840, twenty-seven days after he was bitten, six days after the appearance of the first symptoms, and four days after he was first subjected to medical treatment.

The difficulty of swallowing liquids was a prominent symptom throughout; it was greater on Wednesday (the next morning after I first saw him) than at any other time; on Thursday afternoon he drank half a teacupful without much trouble; his thirst continued and he took more or less water every day, and occasionally without much pain.

Continued restlessness was present throughout; he slept more during the whole week before his death, except about half an hour on the 18th.

Thursday, he was mostly somewhat delirious especially during the last day, but was perfectly rational when spoken to, or when he had something to fix his attention; and what is remarkable, had not the least conception of the cause of his disease, but continued to blame the cold lemonade.

He ate nothing of any account throughout the whole course of his disease except the bread on which his medicine was administered.

He complained of no particular pain, except headache, once or twice, and a little pain in his right arm where he had been hurt by a horse. But he continually cried "Oh! oh! oh!" which, with his anxious countenance, tumbling and tossing, presented an appearance of suffering of which no description could afford any adequate conception.

The symptoms in this case seemed to differ from those of tetanus which I have seen, principally in the total absence of anything like the tonic rigidity of muscles observed in tetanus; the character of the convulsive movements, which presented more the appearance of tremors than convulsions; the greater irritability and intolerance of light; the power of any trifling exciting cause to produce a paroxysm.

There was but little susceptibility to the action of *narcotics*. Tuesday night he took two teaspoonfuls of laudanum, without any appreciable effect. On (Wednesday) 17th, he was directed gr. ss. morphiæ sulph. every hour till he became easier, which occurred soon after he took the second dose. In three hours he was as bad as ever, and began to take it again. At night the dose was doubled and continued, with the effect of producing some drowsiness and a short nap on Thursday; more ease and an ability to drink without so much trouble. The medicine was continued at this rate as nearly as could well be accomplished with attendants, who were very much afraid to trust themselves in his way; indeed, there was a difficulty of administering any medicine throughout the course of the disease with proper regularity, except when I was present to attend to the matter myself. Some extract of aconite was prescribed during the last day, but it was not administered with any degree of regularity on account of the rapidly increasing delirium. I was induced to use the large doses of sulphate of morphia in this case from having observed its beneficial effects in two cases of traumatic tetanus, which terminated favourably, in which it was used in very large doses, almost to the exclusion of other remedies, and in one of which the water dread was quite as great as in this case. If it should ever be my fortune, or misfortune, to treat another case of this disease, the salts of morphia would be liberally administered, since we are not acquainted with a more active or more certain medicine of its class. Two remissions of the disease seemed evidently to depend upon it; the aconite would probably be omitted, as the delirium increased very much soon after it was administered, and continued constantly till death terminated the case. This, however, is partly if not wholly to be attributed to the progress of the

disease and the omission of the morphia on the alternate hour. Its uncertain strength is another serious objection to the use of aconite in a disease which requires large doses and promptly administered.

Cathartics operated well, considering that there was so much laudanum administered at the same time; indeed, much better than could have been expected in a disease so seriously involving the functions of the whole nervous system. I should not much wonder if the alimentary canal were yet discovered to be the best surface for the application of our counter-irritants in this disease.

Blisters drew very promptly. One placed on the nape of the neck was fully raised in five hours from the time of its application; and another placed on the epigastrium acted quite as promptly.

He was evidently salivated on Saturday the 20th. The mercurial fetor was very evident, with slight ulcerations about the roots of the teeth. The blisters had been dressed with mercurial ointment, and frictions employed to the arms and thighs; he had likewise taken several large doses of calomel with a view to its cathartic effect.

Blood-letting was not employed in this case, although it is so universally recommended and as universally practiced, as if it is ever to do any good in these cases it should have been made to appear in some of the numerous instances in which it has been tried. I am not, however, disposed to find fault with it while I have nothing better to offer.

The dog which inflicted the wound in this case appeared more irritable than usual the day before, as appeared from his biting the cat, refusing his food, &c. He bit two individuals, a man and a boy—they were both fond of the same kind of amusement, the one on the hand, the other on the bare foot; the next day after, he bit Baker. He escaped within an hour or two afterwards, and has not been heard from since. This occurred May 25th, 1840.

Neither of the individuals bitten has as yet suffered any inconvenience except a little fright. As neither of these was alarmed till after unequivocal symptoms of the disease were present in the first case, I advised them to do nothing, that there were not more than one in twenty of those bitten by rabid animals who suffered in consequence, and that as one had already suffered, we should probably hear of nineteen others being bitten before another would suffer from the disease; that in fact their danger was inconsiderable; that I knew of no remedy likely to be of any use, except as it might tend to allay their anxiety; that they might as well go to Mrs. —— (of whom they spoke as professing to have a certain remedy), or any other old woman, and take her medicine, as they would almost certainly add two to the well-authenticated cases of the successful use of her prophylactics. This was the course pursued; the old lady assured them that they need not fear after taking her medicine: her prescriptions were faithfully attended to, and so far with perfect success. They gradually ceased to be alarmed, and in the course of a few weeks, after

the excitement in the neighbourhood had ceased, appeared to have no more anxiety about the matter. The remedy which they used appeared to be the root of the elecampane, &c., according to the formula given in *Rees's Encyclopædia.*

I hope my advice was correct, although I did not feel quite all the indifference I professed. One was bitten on the bare foot, the other on the hand among tendons and bones; nor could the precise point be indicated, thus rendering it altogether impossible to have removed the part, without amputating the foot and hand. This I suppose no prudent man would have advised, and in regard to the thousand-and-one certain remedies, the evidence is not of a nature to induce us to place reliance upon any of them. And to have talked of these things without caring to carry them into effect would merely have tended to increase the anxiety and mental depression, which are prominent symptoms of the disease, and may perhaps occasionally act as an exciting cause—at all events could do no good. I imagine that I did not much exaggerate their chance of immunity, since we only hear as a general rule from such as suffer, whilst those who are bitten and escape are only known for the most part among their own immediate acquaintances. And Mr. Hunter gives an account of twenty persons bitten by the same animal, only one of whom suffered from the disease. It must, from the above considerations, and from the rarity of the disease, be impossible to estimate with any probable degree of certainty the proportion who escape. I should certainly have given a larger estimate in this case if I had thought it would tend more powerfully to allay their anxiety.

ART. XIV.—*General Paralysis from Abscesses in the Cerebellum.* By SAMUEL CHAMBERLAINE, M. D., of Philadelphia.

A. B., æt. 40, married, of thin, spare habit, was attacked suddenly with a "fit" about four weeks ago, while walking in the street. Giddiness and involuntary clonic contractions of the left arm are the chief symptoms; he did not fall; did not lose consciousness; got home of himself. On getting into bed, similar convulsive movements attacked the left leg. Dyspnœa and foaming at the mouth occurred. He has not been able to walk since, nor can he get from and to his bed without assistance.

His health has not been good since he had syphilis four years ago; but has been worse since he received a blow on the back of his head and neck, by a trunk from the top of a stage in which he was upset about two years ago.

Cups and blisters to nucha; purges and stimulating embrocations to his limbs had been prescribed and used; his headache has been relieved and his limbs have regained some power.

March 20th, 1850.—Present symptoms: His countenance has an expression of weariness rather than of pain. He lies upon his back, unable to rise, but can use both arms and legs. His movements are slow and difficult; his muscles do not obey his will promptly; his knit brow and fixed eyes show that all his energies must be concentrated upon his right arm, that he may carry his hand to mine; the left he moves more readily and more promptly. His grasp is tolerably strong in both hands; but stronger in the left. His strength quickly fails; he cannot maintain his grasp more than a few seconds; it is relaxed, but the fingers are not unclasped; it is only by directing his attention to it that he opens his fingers so as to free my hand from his.

Sensation appears to be normal. He says he feels my pinch equally in both arms, and has in both equally good perception of what he holds; he does not loose his grasp, nor require to keep his eye upon what he holds in order to retain it in his hand. The reflex power is therefore normal.

His animal heat is very soon lost; a few moments exposure of his arm out of the bed is sufficient to make it extremely cold; and this he says brings on a return of the "spasms of the arm." Yet he does not feel the cold, nor does he perceive the cold wall with his feet, which his wife sometimes finds completely chilled by it, and he not aware that they were against it; to the touch they are extremely sensitive, being *tickled* beyond his endurance by the least handling. His eyes are natural; pupils normally sensitive to light; not dilated. Tongue natural; is protruded with ease and promptness; not turned aside. Stomach rejects food frequently; a very slight exertion causes vomiting. Bowels extremely costive; were pretty regular till a month ago. Pulse extremely weak, small and very slow. Spine examined by careful pressure on each vertebra; there is no pain at any.

25th. Had a slight return of the "spasms of the arm" on yesterday. To-day he appears to be weaker; his voice is faint and weak; his mind acts slowly; he replies to me only after an interval of a minute or two; but his replies are then correct and to the point. He protrudes his tongue slowly; seems to hold it out with his teeth; his lips remain grinning, only slowly regaining the natural position. He squeezes my hand with great effort; it evidently requires him to summon all the powers of his will to squeeze it at all. His left hand possesses more power than the right, but it costs him the same effort to use it.

29th. He has vomited every day; generally soon after eating, but always when he is worse or makes any effort to move himself; sinapisms have had no effect in restraining it. Hydrocyanic acid has appeared to arrest it. He has gained some strength since the "fit" of the 24th; his mind as well as his muscles acting now promptly.

30th. His wife reports a "severe fit" last night, and frequent vomiting. He is stupid; his brows contracted; his mouth quivers in the attempt to speak, but he says nothing. Cups to his temples; strychnine gr. $\frac{1}{16}$, three

times a-day, and hydrocyanic acid to be repeated or not, according to the frequency of the vomiting.

31*st.* He exhibits more strength than I have seen in him before; he takes the tumbler and carries it to his mouth, which he was unable to do. His replies are prompt and immediate; he gives his hand quickly and carries it promptly to mine, and without the usual slow movements and unsuccessful attempts; rubs his hands together. I have not seen him use so much muscular action before. He yawns a great deal; says he feels tired. He vomited once to-day; but has retained a piece of chicken. His bowels are obstinately costive; he has had no stool for a week almost.

April 1*st.* His wife finds that he complains greatly of pain in his neck whenever she raises his head; pressure causes pain at third, fourth and fifth cervical vertebræ.

6*th.* He has taken the strychnine at very irregular intervals, often refusing it altogether; has now taken about half a grain. There has been some apparent increase of strength; he has not required the same effort (with distortion of his face) to squeeze my hand; still he cannot regulate his movements. On attempting to put a pill into his own mouth, he could neither carry his hand directly to his mouth, nor, when he had reached it, could he open his mouth and his fingers at the same time; he either retained the pill, or let it fall while his mouth was still closed.

Emaciation has now become extreme; his belly is retracted to the spine, and presents a hollow beneath the ribs and below the diaphragm.

Vomiting has continued every day; sometimes but once, usually three or four times a-day. The sense of fatigue is nearly constant with him; yawning frequent. The only pain complained of is in his scalp—a feeling of soreness rather than of pain; he makes his wife rub it constantly with spts. camphor.

His mind has wandered a little. His wife has often reported that he "talks strangely" to her and "is very irritable." His replies to me have been correct, but he requires time to collect his thoughts; sometimes says he is "trying to remember," when I repeat my question. Sometimes he has started with surprise at seeing me, and appeared to forget me for the moment.

11*th.* Has continued in much the same state. Irritability increases. Soreness in the scalp is more constant. Pulse grows weaker. Power of grasp less and less. He has passed his urine under him, and also one or two stools. Skin over the sacrum is becoming hard and sore. Pain over the cervical vertebræ is greater; he cries out if I press strongly there.

13*th.* I found his heart acting with violent impulse, and great rapidity; its sounds normal; pulse unusually strong; a dull, heavy pain at heart was all he complained of.

23*d.* I found him with his head thrown back; his mouth fast closed; and his eyes staring wildly. He was alone, and may have just been suffering from one of his "fits," no one knowing it. His intellect was more dull than I had

yet found; he would not speak, though he understood me, putting out his tongue and grasping my hand when told.

26*th.* His mind is clear again; he talks readily, and to the purpose; but soon begins to ramble, talking to persons who are not present; he appears to be very sensitive to every noise about him, on the street or in the house; his eyes not more than naturally sensitive to the light. His left side is now as completely paralyzed as the right. Sloughs have formed on the hip and sacrum. He passes his urine beneath, but from inattention or paralysis of the bladder, for I saw him pass it in full stream.

To-day I galvanized him. He has for several days refused the strychnine, and indeed all medicine. He never took the strychnine regularly.

May 6*th.* Galvanism has been applied several times with intervals of a day, according to his strength. At first there was some appearance of improvement, shown by more energy of will and more prompt and ready movements, and by retaining his food for longer times.

Mild delirium has continued nearly constant; he talking continually to persons who were not present, and of things long gone by or that had never happened; and he raved so much about the galvanism that his wife wished it discontinued, thinking it caused the delirium.

11*th.* Died. Has continued to grow weaker since 6th, vomiting almost constantly. Brandy and water has been his only drink. Food of every sort he has refused for several days. Some intelligence and some power of motion remained this morning. He recognized his wife, squeezing her hand, and raised his head when his daughter's name was called. About noon he died.

Post-mort. examination forty-four hours after death.—Body emaciated to the last degree.

Brain.—Dura mater healthy, natural, pale; not adherent to cranium; arachnoid presented a few isolated spots of a slightly milky hue on the upper surface. Pia mater presented a moderate venous congestion. Substance of brain dry, very bloodless, of normal consistence; ventricles free of fluid; the plexus choroides remarkably pale.

Cerebellum.—Numerous encysted abscesses containing pure green pus were imbedded in the substance of the cerebellum, on both sides at the superior surface; at the base they were more numerous on the left side; the right containing but two or three, and these smaller; their size from that of a large marble to a pea; their walls a line perhaps in thickness, and sufficiently firm to permit the turning them readily out of the substance of the cerebellum. One or two near the surface were seen protruding before they were opened by the knife. The central lobe was not involved, nor did it appear to have been affected by them, neither by their pressure nor by their previous disease. There was diffused redness (minute arterial injection) on the surface of the convolutions, in a limited space on the left side, near the larger abscesses. Elsewhere the cerebellum appeared healthy to the eye.

Medulla Oblongata.—The gray matter was very pale, and not readily distinguished from the medullary; as was the case also with that of the spinal marrow; its substance appeared softer than natural; was readily wiped away with the sponge, breaking down very easily; there was congestion of the vertebral veins, probably cadaveric, as the blood was readily pressed out of them. Also a yellowish gelatinous substance in the loose cellular tissue between the dura mater and the med. spinalis, and the vertebral canal, of more than normal amount.

The *Spinal Canal* contained a small quantity of yellow serum.

Remarks.—The symptoms in connection with the post-mortem appearances agree perfectly with the received physiology of the cerebellum. Dr. Carpenter considers it "probable that the lobes are specially connected with the regulation and co-ordination of movements, whilst the vermiform processes are the parts connected with the sexual function." In this case, the seat of the abscesses was the lateral lobes of the cerebellum, and the most prominent symptom was the entire want of power to regulate his movements; as in the attempt to carry a pill to his own mouth. On another occasion, he attempted to give me his hand; he raised his arm and advanced it towards me, but the fingers remained extended perfectly straight and rigid, and would not grasp mine: after several attempts, he remarked, "They won't come down," and finally he endeavoured to seize and bend them himself with the other hand.

In addition to this, his movements were always slow and difficult; always slower than his will, and always required his attention to be fixed on each muscle (or set of muscles) before he could move at all. Both strychnine and galvanism (especially the former) appear to have recalled the power of combining his movements and to have increased the energy and the promptness of them. Their effects however were soon lost; the strychnine he neglected, the galvanism he quickly became accustomed to.

The central lobe was unaffected, and accordingly there was no evidence that the sexual instinct was either increased or diminished. Nor were his habits, of which he spoke freely to me, such as to make it probable that there was previous disturbance of that instinct subsequent to the injury at the back of his head: nor before this were they such as to have been a co-operating cause.

The vomiting and intense soreness of the scalp are probably due to pressure by these abscesses upon the medulla oblongata and upon the origin of nerves distributed upon the scalp.

To the vomiting and the protracted starvation in consequence of it are due the extreme emaciation and the delirium; the mild character of which, and its gradual increase, together with the normal condition of the brain, show that its cause was the want of nourishment. He seems really to have died of starvation, for there was nothing in the condition of his organs (so far as examined) to prevent his living till the abscesses were absorbed, could food have

been supplied to him and retained; he seldom suffered from hunger, if ever, indeed; and usually refused his food when brought him, although he might have just asked for it. A feeling of extreme fatigue was the most he complained of, caused, doubtless, by the condition of his nerve centres (spinal marrow), which suffered by the pressure of the abscesses, and in common with his general system by the want of nourishment and by the long disease of its functions.

ART. XV.—*On the Treatment of Permanent Pseudarthrosis by an Apparatus which permits the use of the Limb and obviates the necessity of Amputation.* By HENRY H. SMITH, M. D., Surgeon to the St. Joseph's Hospital, Philadelphia.

FEW operations in surgery are more strikingly characteristic of the defects of the science than those of amputation of a limb on account of the existence of false joint.

When nature, under peculiar circumstances, shows herself unable to consolidate a broken bone, we readily recognize the great indebtedness of surgery to her powerful aid; but when in consequence of this a surgeon proposes to amputate a limb that is perfect except in the flexibility of the bone at the seat of injury, we cannot but notice the imperfect character of his art.

Under the most hopeless circumstances of ununited fracture, it should therefore be borne in mind that the restoration of the integrity of the lever upon which the muscles act will enable them to perform their function, and thus save the patient from becoming a cripple for life.

A simple means of affording the necessary support to a bone under these circumstances will be found in this and a previous paper. These means are but a slight modification of those which have been long employed in the bending of bones, resulting from mollities, &c., but their application to cases of pseudarthrosis generally will also be found to prove most valuable.

In No. XXIX., New Series of this Journal (Jan. 1848), I reported a case of false joint in the leg, in which the patient, after vainly suffering the application of caustic to the ends of the bones and subsequently their resection, was enabled to walk without difficulty by means of the splint there described. Suggestions were also offered as to the utility of somewhat similar means in the case of false joints in the upper extremity. I, however, feared at that time that pseudarthrosis in the femur would prove an exception to the general utility of the means recommended. Such I am now happy to say has not been the case in the instance in which it has been tried, and it is now reported in

the hope that surgeons may be induced to try it before resorting to amputation in cases where possibly a useful limb may be gained.

Since the report of Jan. 1848, the patient, Mrs. K., has constantly worn the splint, and found it to answer better than several others, which were tried in the hope of improving on the original. The main part of her weight (about 160 lbs.) being sustained by the straps at the knee, and the fracture strengthened by pressure all round it, she is now (Dec. 1850), although labouring under a false joint in both bones of the leg to a degree which permits considerable flexion and extension directly in the middle of the tibia, able to walk without attracting the attention of ordinary observers.

The success attending the use of the splints in another instance of a similar injury has also been most gratifying. This patient, Mr. S., weighing near 200 lbs., received a fracture of the leg in December 1849, for which he was skilfully treated by a distinguished practitioner of this city. Union, however, did not occur, and after labouring under false joint for three months, was directed to Mr. Rohrer (the cutler who manufactured my first splint) for an apparatus.

Being furnished with one similar to that of Mrs. K., he was soon enabled to walk, and, under the judicious treatment of his physician, such a degree of inflammation was induced in the bone as resulted in its consolidation. Although he can now bear his weight upon the limb, he yet wears the splints to guard against accidents.

Impressed with the results of these cases, I embraced the opportunity presented to me last April of testing the applicability of similar means to the treatment of pseudarthrosis in the femur, modifying them only so far as the structure concerned rendered necessary.

The Hon. Judge G——, of Ohio, received an oblique fracture a little above the middle of his right femur, in the winter of 1848, which, though treated in the usual manner, never united. In April, 1850, he therefore determined to visit this city, and placed himself in the hands of Dr. Wm. E. Horner, of the University of Pennsylvania, with whom I saw him. He was then upwards of sixty-three years of age; in rather feeble health; with an oblique ununited fracture, which permitted free motion of the middle of the shaft of the femur in every direction, and was incapable of sustaining his weight, being unable to move without crutches.

After fully considering the peculiar circumstances of this case, it was decided not to recommend an operation, but rather to try what the splints might be able to do towards relieving him. Accordingly, on explaining to Mr. Rohrer my views of the case, and the probable modification of the apparatus that would be required in this patient, I had the satisfaction of finding that he could accomplish it. After some trifling alterations which experience demanded, the Judge found himself once more able to walk with great freedom, very much to his satisfaction, as he had been assured by several surgeons whom he consulted that amputation would be his only resort.

The splints are shown in the figures.

Fig. 1.

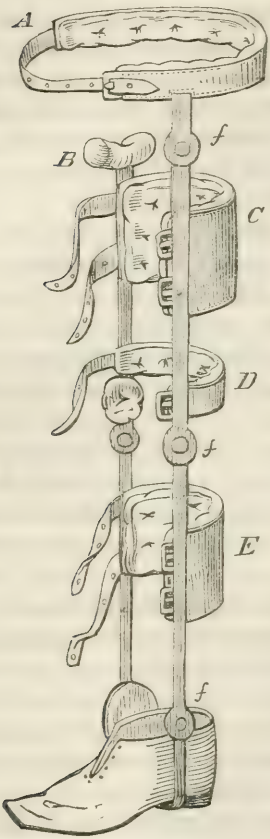


Fig. 3.

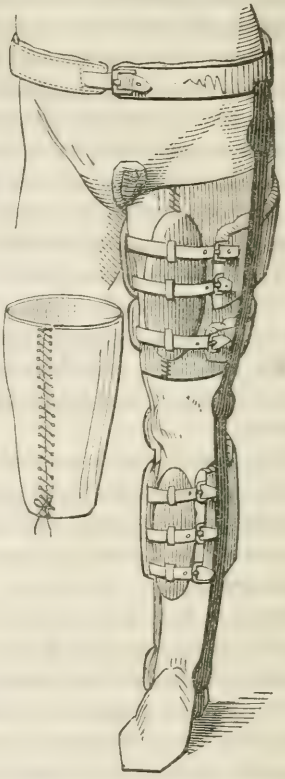


Fig. 2.

Fig. 1 exhibits a three-quarter view of the apparatus.

A.—A band and belt to go round the pelvis.

B.—A padded crutch-head to support the weight of the body upon the perineum, as in Boyer's splints for fracture of the femur. As he gained confidence, this piece was subsequently removed.

C.—A support to the back of the thigh. The splint which afforded the support to the front of the fracture is seen on the thigh in fig. 3; it was formed of sheet-iron, moulded to the limb and well padded.

D.—Another support just above the condyles. The front splint, fig. 3, came down in front as low as this piece.

E.—A support to the back of the leg, where the broad straps in front were buckled. This kept the leg directly in the line of the femur.

fff were joints in the side steel splints, to favour the motion at the

ankle, knee, and hip joint. They were so arranged by a "half-step" as to prevent sudden or excessive flexion.

Fig. 2 is a buckskin thigh piece, which laced up in front and extended from the groin to the knee, to protect the skin from chafing.

Fig. 3 shows a three-quarter view of the apparatus as applied with this. The Judge is now able to walk without his stick, though generally using it, from the force of habit; and in a recent message to Mr. Rohrer, in connection with some slight repairs, declared himself unwilling to part with it for the best farm in Ohio.

To the mechanical skill of Mr. Rohrer, he is certainly indebted for the lightness and strength of his semi-artificial limb.

Art. XVI.—*Hydrocephalus cured by Hydriodate of Potass.* By J. St. Julien Guerard, M. D., of Beaufort, S. C.

In the whole list of "Opprobria Medicorum," there is no disease that holds a more conspicuous place than hydrocephalus; none that has more completely put to naught the well-directed skill of the physician. I have therefore deemed it highly imperative, that whatever is calculated to throw light on this affection, or which tends to elucidate its pathology or treatment, should be made known to the profession.

As my aim is to be practical and useful, I shall not enter into the *polemics* of the subject, but will content myself simply with detailing the treatment and results of a case, which occurred lately in the practice of my father, Dr. J. D. Guerard, of this place. On the 8th of February last, Mr. J. S. Perry sent in from his plantation to the doctor a coloured infant for medical treatment. The mother stated that her child was six weeks old, and had suffered severely during the month from a cold, which resulted in an enlargement of the head. On examination, the head was found a third larger than natural, and the sutures were all widely patulous; the fissure commencing at the root of the nose, and extending up the medium line of the os frontis to the anterior fontanelle, being an inch across. The fontanelle itself was capacious enough for three fingers. The coronal and sagittal sutures were also widely extended. The scalp covering these broad fissures was puffed and elastic to the touch, and indicated the presence of much fluid beneath. Dilatation of the pupils and strabismus, together with subsultus tendium, and sudden screaming and tossing of the arms upwards, plainly denoting the nature of the little patient's affection. Also, the bowels were costive, and vomiting frequently occurred. This congeries of symptoms, so clearly evincing a case of hydrocephalus, determined my father at once to try the efficacy of the hydriodate of potass; cases

of the undoubted disease having been recorded as cured by this potent drug in your valuable Journal. He accordingly ordered an ointment consisting of 25 grs. hyd. of potass to the ounce of lard, to be well rubbed over the whole head, twice in twenty-four hours. This to be gradually increased up to 40 grs. to the ounce. At the same time, a solution to be made by dissolving 20 grs. of the hydriodate in ℥i of rain-water, and of this 10 drops to be given morning and evening. This treatment was continued up to the 3d March, and no melioration of the disease occurring, blisters were now ordered to be applied to the cranium; first on one entire half and then on the other, and so alternating that one side of the head or the other was always under the influence of the epispastic. A couple of grains of the blue mass was likewise ordered twice daily, which kept the bowels in a tolerably active state. Very shortly after, symptoms of anasarca supervening, the unguent was directed to be rubbed over the thorax and abdomen. And now appeared the crisis of the case, for *a vesicular eruption broke forth over the entire body*, the vesicles bursting and discharging pure lymph. From this critical discharge, the convalescence of the patient commenced, and the remedies being still continued, all the alarming symptoms gradually disappeared. About the middle of July, all remedial measures were discontinued, the case being considered as cured. The child was brought to town and examined two weeks since, and although there was still some obliquity of vision, I thought I had never seen a healthier and more sprightly looking infant. The sutures were almost all filled up with ossific matter, except the broad space between the two portions of the os frontis, and also the triangular space of the anterior fontanelle, but in both of these there is a hard, bony deposit on the dura mater below, and the cavity will soon be filled up, although not to a level with the superficies of the cranium. The forehead will always be marked with a deep sulcus in the middle. But the absence of all serous effusion from the head, or other parts of the system, and all symptoms denoting pressure on the brain, show that the hydrocephalic affection has been entirely removed, and the cure of the little patient made certain.

In conclusion, I would remark that the results of this case accord with those of other instances of hydrocephalus that have been treated by similar means, and that together they tend to show the complete curability of this dreadful malady even in its worst phases by the hydriodate of potass. Doubtless its peculiar virtue depends upon its excitant action on the absorbent system, assisted probably in this case by the alterative powers of the blue mass that was also given. As a salutary deobstruent, and powerful *discusser* of all hydropic and other morbid products, I regard iodine and its preparations as vastly superior to mercury, and as being one of the most potent weapons ever furnished by chemistry for the furtherance of our endless conflict with suffering, disease and death.

REVIEWS.

Art. XVII.—*The Transactions of the American Medical Association.* Instituted 1847. Vol. III. Philadelphia, 1850. 8vo. pp. 499.

The present volume comprises the transactions of the Association at its third annual session, held in the city of Cincinnati, May 1850.

It is not our intention to enter into an examination of the influence which the acts of the Association since its organization have had, or which its future proceedings, based upon the general principles thus far recognized by its members, are calculated to produce upon the medical profession in the United States, excepting so far as this question is involved in the reports contained in the volume before us.

Convinced that the deliberations of an annual congress composed of delegates from all the branches of our profession, and from every section of the country, cannot fail to exert a favourable influence upon the character and condition of that profession, and having the more confidence in the beneficial working of the National Association in consequence of the firmness it has thus far exhibited in its efforts to elevate the standard of medical education in our midst, we have little fear of the judgment which the future shall render in regard to it.

The present volume of Transactions contains eleven reports from the standing and special committees appointed at the preceding session. But five of these reports are from committees charged with the duty of suggesting measures for carrying out the leading objects of the Association; the remaining six, though in themselves interesting and valuable, have at the best but a very indirect and remote relation to those objects, or to the means for their promotion.

The first report in order is that of the *Committee on Medical Sciences.* This is made up of a brief statement of "those facts illustrating the progress of Medical Science in the departments assigned to this committee, which have been gleaned from the medical journals and other publications of the preceding year, and from numerous correspondents. These departments are Anatomy, Physiology, General Pathology and Therapeutics, with other branches of Natural Science, bearing directly on the condition and progress of medical knowledge in America."

This report displays considerable industry on the part of the gentleman by whom it was drawn up. It presents a very fair and impartial exposition of the more recent contributions made by American physicians to medical knowledge. These, though they may not equal in number and importance the contributions made during the same period by the physicians of Europe, speak favourably, nevertheless, for the zeal with which the field of observation occupied by the former is attempted to be cultivated, and exhibits the useful and often interesting results which may be developed amid the absorbing duties of a profession, which, in this country, leaves to the practitioner but small time for a prolonged series of investigations, or for the record of these when they are made, in a form adapted for publication.

The exposition made by the committee is unaccompanied by any remark or comment. Their report being addressed to a body of physicians, they did not, we presume, consider it necessary to investigate the absolute or relative

value of the several facts and observations comprised in it, and yet it must be evident that such an investigation would have greatly increased the interest and value of the report.

The second report is that of the *Committee on Practical Medicine and Epidemics.* This is a very valuable document. Not only do its remarks on the several topics upon which it touches bear the impress of a sound practical judgment, but the positive information which it communicates, though limited to a very few of the topics embraced within the duties imposed upon the committee, is clear and definite, and sustained by the best statistical facts within its reach.

Upon the subject of practical medicine, the materials furnished by the report are extremely meagre; this results as well perhaps from the few improvements in the management of individual diseases that have been introduced during the past year by the physicians of this country, as from the committee having restricted their notice to the more useful novelties in medical practice derived exclusively from American sources.

Excepting so far as the subject of special therapeutics is embraced in the consideration of the leading epidemic of the past year, we find in the report nothing under this head of any particular interest.

The report is mainly occupied with a history of the epidemic cholera as it occurred in the United States during the year 1849. The most interesting portion of which history is that which relates to the facts connected with the introduction of the disease into New York and New Orleans, and its subsequent outbreak and spread in those cities.

That in the latter part of the year 1848, the cholera was introduced into New York by the crew of a vessel from Havre, there can be no reasonable doubt; of the fact of its introduction into New Orleans by the crew of a vessel from the same port there is not, however, the same conclusive evidence. Already had the premonitions of a visitation of the epidemic been experienced in the latter place, while the condition of the city in a hygienic point of view, and the state of the weather, were precisely such as would favor an outbreak of the disease. The rapid spread of the disease in New Orleans is likewise indicative rather of an epidemic cause than of propagation from one or two foci of infection.

That the cholera is not contagious in the proper acceptation of the term is proved very clearly in the present report by a close examination of the manner in which the disease commenced and spread in Philadelphia. An outline map of the city and districts is given, showing the date and place of the occurrence of the first twenty-three cases of cholera reported to the Board of Health.

"Letters," says the report, "from the twenty-one physicians to whose care these cases were entrusted, authenticate in the strongest manner the details of them. Two cases occurred on the 30th May at the upper verge of Philadelphia, in the Richmond district. On the same day, another presented itself in the district of Southwark, on the lower verge of Philadelphia, at the distance of three and a quarter miles. On the following day, a patient was seized within the city proper, a quarter of a mile from the third case. Three-quarters of a mile from this occurred another on the 1st of June, and a sixth on the same day near the Schuylkill, at least one and a half miles from any of the preceding ones. The seventh case was near the river Delaware, the eighth in Spring Garden, the ninth in the City near its southern border, and the tenth two miles and seven-eighths from the ninth, at the Point House, entirely below the limits of the City and Liberties. On the 11th of June occurred the eleventh case, in Richmond, near to the spot where happened the first two cases, twelve days before, and five miles and one-eighth from the tenth case.

"In seventeen days from and after the first case, three had happened in Rich-

mond, three in Kensington, two in Spring Garden, ten in the City, four in Southwark, and one in Moyamensing. Of these, with the exception of the first two, none were within a square of each other, although every district, but those of the Northern Liberties and Penn, had at least one case.

"A few of the gentlemen to whom notes were sent failed to answer them. Two had cases which had been in the immediate vicinity of other cases, but fifteen replied decidedly that there was no reason to believe that their patients had been exposed to any infected place, or to any case or cases of cholera. One case, the eleventh, which occurred on the twelfth day of the epidemic visitation, had recently visited the infected city of New York."

The general conclusion of the Committee is, that

"Cholera is portable but not contagious, that it is dependent for its accidental power rather upon density of population and personal uncleanliness than upon any other causes. An atmosphere highly charged with emanations from living bodies seems to be the chief stimulant of the choleric influence. Next to this, the most powerful auxiliaries seem to be habits, passions, and food of a depressing character; whilst the influences of every kind which usually determine the blood to the intestinal surface give to the diseased agency its most dangerous direction."

That cholera and many other diseases not of a contagious character may be introduced into the midst of a community by the arrival of persons affected by them, or even of persons from places where those diseases are prevailing epidemically who are not actually labouring under them at the time of their arrival, is established by too strong a body of evidence to permit its being denied. In what manner such diseases become in this manner *portable* is perhaps inexplicable.

Notwithstanding it is true that cholera prevails usually to the greatest extent, and produces the greatest amount of mortality in those locations which are deficient in ventilation and cleanliness, and overcrowded with a debased, intemperate, illy lodged, and badly fed and clothed population, yet it is a curious fact that during the epidemic of 1849, in some of the worst localities in one of the southern districts, where everything appeared the most favourable to an outbreak of the disease, very few cases occurred. It was, nevertheless, in only those localities of the city and surrounding districts where the hygienic influences were unfavourable that the cholera occurred to any extent either in 1832 or 1849.

The following remarks in relation to the treatment of cholera have an important practical bearing:—

"So far as the committee have been able to collect the sentiments of physicians much conversant with the subject of the treatment of cholera, they believe that the internal sedatives and astringents, in moderate and frequent doses, prompt venesection, and external stimuli, including heat and cold, as the case may require, and salines, constitute the most successful practice in this formidable disorder. One of the most common errors consists in the want of patience, and in the restless change of the mode of remediation, so that a medicine is not permitted to make a permanent impression before a new article is substituted. It is chiefly for this reason that empirical remedies have so often acquired a reputation superior to that of a more rational practice which is not so steadily adhered to."

There is not much of novelty in the following remarks; still they are interesting as confirmatory of a fact which has been noticed in every place where the cholera has made its appearance.

"The cause of cholera is usually almost universally admitted to be a poison, the introduction of which into the body disturbs the nervous system in nearly all the people who live within its scope. In many, this disturbance is mani-

fested only by lassitude, or slight cramp, or slighter indigestions. In others, it expresses itself by anorexia, borborygmus, diarrhœa, or even dysentery. In a small part of the population it manifests its power by the production of watery passages, aqueous emesis, a rapid decline of the force of circulation and of the function of heat, and by violent and painful cramps of certain muscles.

"Are all those one and the same disease? Assuredly, if produced by a single specific cause! That the causes of cholera produce other and even fatal diseases, which are not usually esteemed as cholera, may be proved in various ways. Perhaps the strongest is the fact that in all places where cholera prevails, an attack of it is preceded by a diarrhœa of greater or less duration, except when, as at the New York quarantine station, it was brought from sea suddenly. Even in such cases, a diarrhœa immediately follows the first cases of cholera, and marks nearly all the subsequent ones.

"Another proof of this important truth is not only the coincident prevalence of bowel complaints which do not terminate in cholera, but their singular tendency to a fatal issue without presenting any acknowledged cholera symptoms.

"A reference to the statistics of such of the Philadelphia cholera hospitals as presented detailed reports, will show the prevalence of other bowel complaints. Thus, in the Cherry Street Hospital, while twenty-seven were affected by cholera, eleven had dysentery, and twenty-four diarrhœa, and that, too, in a hospital devoted to the use of cholera patients.

"In New York, in 1848, when no cholera existed there, 492 persons died of cholera infantum, 27 of cholera morbus, 227 of diarrhœa, 518 of dysentery, and 291 of inflammation of the stomach and bowels, making for the five warm months a grand total of 1,355. For the same period of 1849, when cholera prevailed, there died of cholera infantum 901, of cholera morbus 226, of diarrhœa 615, of dysentery 949, and of inflammation of the stomach and bowels 344, making a grand total of 3,035; although cholera asphyxia removed from the possibility of death from such causes 5,017 cases of persons who, from bad habits, exposure, and want, would have been very liable to such disorders.

"The valuable paper of Dr. McPheeters, on the late epidemic at St. Louis, speaks, in several places, of the general prevalence of abdominal affections, and of the irresistible tendency of death by affections apparently slight, and in ordinary times easily managed, and concludes a paragraph with the remark that 'this enormous mortality from other diseases is, in a great measure, to be attributed to the baneful influence of the epidemic.'"

To the Report of the Committee are appended two communications, the one from Dr. Pancoast, of Philadelphia, on the treatment of a particular form of aphonia by the inhalation of a stimulating vapour, the other by Dr. Joseph Reynolds, of Gloucester, giving a very able account of the typhoid fever and dysentery, as they have appeared in the epidemic form, during the last four seasons, on Cape Ann, Mass.

The form of aphonia alluded to in the paper of Dr. Pancoast is one of not unfrequent occurrence, subsequent to an ordinary attack of catarrh, and is unconnected with any perceptible organic lesion in the pulmonary apparatus.

"The voice is reduced to a faint, hoarse whisper, distinguishable only at the distance of a few feet, and a continued attempt to talk, though it gives no pain, becomes quickly attended with a feeling of fatigue, as though there was some obstruction to the passage of air through the larynx. In breathing, surely, there is little or no difficulty in these cases, as the individuals are capable of undergoing considerable exertion without very unusual signs of fatigue."

Dr. Pancoast supposes the aphonia in these cases to depend upon a paralyzed condition of the muscles of the larynx, whose business it is to dilate the rima glottidis during the act of articulation.

Dr. P. relates two cases of this form of aphonia, in which the voice was restored by the inhalation of chlorine. He presumes the chlorine to act merely as a local stimulant, and that to direct any other exciting vapors would effect similar results.

The inhaling apparatus employed by Dr. P. was the ordinary tubulated glass retort, with a glass funnel having some filtering papers at the bottom. In the bowl of the retort was placed a solution of the chloride of soda or lime, and in the glass funnel a portion of muriatic acid largely diluted with water. As the dilute acid falls drop by drop into the bowl of the retort, chlorine will be gradually liberated, and may be breathed from the end of the instrument. In Dr. P.'s cases the inhalation was continued for some minutes, and repeated two or three times a-day, according to the degree of irritation it produced in the throat and larynx.

The report which follows is that on *Medical Education.* This report must be viewed as exposing the sentiments, not of the committee to whom the consideration of the subject of medical education was submitted, but those of the chairman alone. It does not appear that the report was seen by either of the other members of the committee previously to its presentation, and so far as we can judge from the proceedings of the association, the views embodied in it are not those in which the members of that body could concur.

All the views presented in that portion of the report which relates to the preliminary education of the medical student are unquestionably correct. The schools are not *alone* to blame that students are admitted by them, and, after the required attendance upon the prescribed courses of professional instruction, are graduated as doctors in medicine, whose preliminary education, and physical, and moral, and intellectual qualifications are not adapted to render them competent to the faithful and successful practice of the healing art, or to become useful and distinguished members of the medical profession. Physicians should not receive into their offices as students illiterate and incompetent persons. Parents, as well as those desirous of entering upon the study of medicine, to use the appropriate language of the report of Dr. Roby,

"Should be told, frankly and plainly, by those who have the best right and opportunity to do it, that nothing can compensate for lack of physical, intellectual, and moral fitness for his vocation; that his position in a profession for which he has none of the essential pre-requisites must ever be a false one, and that he has no just claim to its honours and immunities, without faithful, continued, industrious application."

If by the private medical preceptor the admission to the study of medicine of any incompetent persons were discouraged, the medical schools could then more properly interpose and effectually aid this movement on the part of the profession, by refusing to matriculate such as could not produce sufficient evidence of a proper preliminary preparation for the successful acquisition and practice of the healing art. The effort to elevate to the proper grade the character of the preliminary preparation requisite for the student of medicine must be made, not by the schools alone, but by the profession in conjunction with the schools. Without the constant and effectual aid of those who are engaged in fitting students for attendance upon the courses of instruction embraced in the lectures and demonstrations of the medical schools, it will be in vain for these latter to attempt by any regulation of their own to effect this important object.

From the remaining portion of the report, we should infer that Dr. Roby has as far misunderstood the real object of the previous recommendations of the association in regard to the increase of the lecture term and the augmentation of the branches taught in our medical schools, as he has overrated the competency of these, with their present courses of instruction, to impart to their graduates the desirable amount of instruction to fit them properly for the important and responsible duties of their profession.

Far be it from us to disparage our medical schools; we know full well the

talents and industry of very many of those who fill with honour to themselves and advantage to the student their professorial chairs; but the question is not whether the limited number of branches embraced in our medical courses of instruction are well taught, but whether, on the one hand, these branches are sufficient to constitute an adequate medical education; and, on the other, whether the time now occupied by the student in the acquisition of medical knowledge is sufficient fully to indoctrinate him in those principles and precepts upon a perfect familiarity with which his future usefulness as a physician so entirely depends.

The question is not whether the recommendations of the Association having for their object the elevation of the standard of medical education in this country have or have not as yet been adopted in good faith by the different schools; but are these recommendations adapted to effect their object? It has been contended, we are aware, that in two courses of lectures of four months each, in which several important branches are but slightly noticed, or entirely omitted, all the knowledge that can be imparted by this method of instruction may be acquired by the student; that everything beyond this is not only unnecessary but injurious. Very few, we apprehend, will be willing to adopt this opinion; many, however, of those who admit that a prolonged and extended course of study would be desirable, could students generally be induced to pursue it, are still opposed to the recommendations of the Association. With Dr. Roby, they base their opposition to those recommendations upon the plea "that in this country admission to all the liberal professions must always remain comparatively easy." That all our institutions "must conciliate the public good will, upon which they are dependent for existence and patronage, by a *liberal* exercise of their powers and privileges;" which, in other words, means by placing the requirements for admission into the liberal profession so low that the door may be laid open to all, with as little expenditure as possible of time, money, and industry, and with proportionably as small an amount of qualification. That it is not practicable or desirable to adopt in American schools that "exact training, rigid requirements, and restraining discipline, considered essential to the highest grade of intellectual education," which is claimed for some of the European schools.

Now it is very doubtful whether they who offer these pleas in opposition to the introduction of a more extended and thorough course of professional education into our medical schools, and to the adoption of a more severe test of the qualification of candidates for the doctorate, are themselves satisfied with them. It is certainly unfair to assert that an adequate number of students would not be found to matriculate in those schools, that should adopt and carry out the measures recommended by the American Medical Association, until the experiment shall be fully tested. It has been said, we are aware, that the rapid increase in the population of our country, and the wide space over which that population is spread, cause so great a demand for physicians, that they must be supplied to meet that demand with a celerity which precludes prolonged attendance upon courses of instruction and a thorough training in the principles and practice of the profession before commencing upon its active duties; or otherwise, many of the new and remote settlements will be left destitute of proper medical assistance, and be obliged to resort in case of sickness to the aid of incompetent persons or the regular empiric. The extent of the supposed demand for physicians in any portion of our country is greatly exaggerated. The emigrant disposition of our people is such as to cause the deficiency of physicians, in any community, however remote, to be very quickly supplied from their superabundance in other places. And even were

this not the case, we deny that the necessity of supplying the demand by such as are only imperfectly qualified can be received as a valid objection to elevating the standard of medical education in the United States, or to demanding higher qualifications in those who would be received as *regular members* of our profession.

It is the duty of that profession to insist that its reputation, its usefulness, and the interests of its members shall receive no detriment from the admission into its ranks of the incompetent and the unworthy. Let then the line of distinction between the properly educated and qualified, and the ignorant and incompetent physician, be distinctly drawn, and honestly maintained; and no fear need be entertained that any respectable medical school will long refuse to co-operate in the effort to elevate the character, dignity, and usefulness of the American physician, by affording him ample opportunities for the acquisition of a complete medical education, and by demanding of its graduates sufficient evidence of their having properly profited by those opportunities.

The report next in order is that of the *Committee on Medical Literature.* This report is the best written, and one of the ablest of those contained in the volume before us. It presents an interesting and judicious estimate of the general characteristics of the medical periodical literature of our country, and short notices of the leading original works by American authors, published during the preceding twelve months. These are followed by a consideration of the subject of a national medical literature; the difficulties which stand in the way of its formation; and the means which the committee deem best adapted for its promotion. Fully convinced of the general accuracy of the opinions set forth with so much force and perspicuity by the author of this report, and concurring in the correctness of most of the means recommended in it for the promotion of a medical literature of our own, many of which have indeed been advocated by us,* we must, nevertheless, be permitted to suggest a doubt as to the judiciousness and efficacy of one or two of the plans proposed. It does not appear to us that for the Association to proclaim, by a formal vote, any American medical work, reported by one of its committees, as being the most valuable that has appeared during the year, would be calculated to promote the object aimed at. In the first place, it would not be possible to select from among a number of works on different branches of medical science that which could with propriety be pronounced "the *most valuable*"—inasmuch as no correct comparison of them could be made. Again, independently of this objection, the most valuable work published during the year would at best be but an equivocal recommendation, unless a number of other works of acknowledged excellence had been published during the same period. But the most striking objection is the difficulty of the task thus assigned to the Association being performed, without exciting in those authors whose works shall not be noticed, as well as in their friends, a feeling of enmity towards the Association, calculated to impair the harmony and usefulness of its proceedings.

Nor are we convinced that offering a pecuniary reward for the best memoir or essay on any given subject is a means well adapted to promote medical literature, or to procure contributions of distinguished excellence. The comparatively trifling premiums that the Association will be able to offer, and the fact that the memoirs or essays presented for such premiums, must be subjected to the judgment of a committee to pass upon their comparative value, will prevent many of those best qualified to succeed from entering into

* See report F. p. 203.

the competition. The experience of the past does not, we believe, speak much in favour of medical prize essays. Very few can be indicated that have added to our knowledge, or that have established a reputation for their authors, or enhanced the reputation already possessed by them.

In the report of a Special Committee on the measures suggested in the Report on Medical Literature for 1849, which follows, some of the leading means adapted to the promotion of a national medical literature are discussed. The conclusions at which the committee arrive, "after a careful examination of the subject," are summed up in the following resolution :—

"*Resolved*, That the only legitimate means within our reach for the encouragement and maintenance of a National Medical Literature, are, to increase the standard of preliminary and professional education required of those who would enter the medical profession ; to promote the circulation among the members of the profession of the medical journals of the day ; to encourage the establishment of district medical libraries, and to induce every practitioner to cultivate with care the fields of observation and research that are within his reach."

The form of the Memorial presented to Congress, in favour of an international copyright law, presented by the National Medical Association, as reported by a special committee appointed at the preceding session of the Association, succeeds the report just referred to.

On the subject of an international copyright law, which we hold to be one of no trifling importance, we shall take the liberty to present here a quotation from the report of the Committee on Medical Literature. In this quotation, Dr. Stillé has presented the subject in so just a light, that we feel desirous his remarks should be read by such as are still opposed to the contemplated law, that they may understand the equitable principles upon which its passage is advocated.

"Different countries began to legislate for authors and inventors at different periods. In England, the first enactment in their favour is not older than a century and a half. This limited the copyright to a very short term of years, which, after strenuous efforts, has recently been extended. But neither in England, Continental Europe, nor America, does the law recognize an author's rights in his works to be absolute and unalienable, and in no two countries is the same degree of right conceded. Everywhere the subject is as much a matter of statutory regulation, as if the natural right of the author had no existence whatever.

"An American author has, consequently, no available and legal control over his own literary productions beyond what the statute grants him. When the period of its protection expires, his intellectual family may be torn from his arms by the first domestic trader who chooses to risk their sale, and at all times the foreigner may make merchandize of his literary progeny. The legal rights of any author, then, are of local origin, and power beyond his own country he possesses none at all, and he cannot with a show of justice complain that the foreign bookseller reprints his works. To do so would be to act the part of the dog in the fable, who was fain to prevent another from enjoying what he could not possibly use.

"It is the fashion now-a-days to brand as piracy the republication of foreign works, and much vulgar abuse has been bandied between France and Belgium, and between England and the United States, which, we think, the view of the subject now presented would have changed into courteous remonstrance. The legal right to republish cannot be questioned, and its existence should protect all who exercise it from reproach. The equitable right to do so is a wholly different question, one which may and ought to be fully discussed in a spirit of temperance and conciliation. If it be true, as we believe, that no such right exists, it is high time that the law and the equity of the subject should be made to harmonize by the establishment of an international copyright.

"The benefits of such a law would be incalculable, springing from the one glorious consequence, that through it the thinking, and therefore the governing minds of two great nations, common in their origin and language, would be brought directly into contact and fused together, strengthening one another by communion, rivalry, and example, and would with this redoubled strength reach and maintain with ease the vantage-ground of civilization against all the world besides. Commerce may knit together nations, but only in their material interests binding them with the bonds of selfishness; but a free intellectual commerce is the noblest of all bonds, for it knits the souls of men.

"A law such as would secure the rights which we assume to be absolute and inherent, is perhaps the surest expedient that could be devised for promoting our native literature. Not only would it enable publishers to offer a fair remuneration to our authors, but it would also have the effect of causing a number of foreign works to appear first in this country; and since the sphere of influence presented by the millions of American readers is so far superior to any other, many a foreigner of genius and even of established reputation would speedily be numbered amongst our adopted citizens. Grafted thus with the strongest offshoots of the parent tree, American literature would rapidly attain a degree of luxuriance and fruitfulness, which is quite impossible under the present system of its culture, or rather neglect. But the benefits would be reciprocal; our writers would become English writers, and find an attentive and appreciating audience among a people who even now receive them gladly, and award to those who deserve it no scanty meed of praise.

"Until within a short time, the copyright law of England, more liberal than our own, was construed to permit foreigners to enjoy privileges which are denied to British subjects in the United States. But by a recent decision in the Court of Exchequer, 'a foreign author residing abroad, or his assigns, is not an author within the meaning, and could not have the benefit of these acts which are intended for the encouragement of British talent and industry.' In consequence of this decision, American works, which had been liberally paid for by certain English publishers, were immediately re-printed by others and sold at a reduced price; so that American books are now as completely at the mercy of the foreign trade as English books are at the mercy of our own. Considering how far from equitable the practice of American publishers has been, we dare not, with any show of reason, contend against the late unfavourable construction of the Statute of Queen Anne, and must be content to witness the exclusion of our authors from a field where they were gaining emolument as well as honour, and destroying the prejudices entertained against us as an illiterate people, careless of success in any but commercial pursuits.

"Nothing short of an international copyright law can place this matter upon an honourable footing; and so prevalent has the conviction of this truth become, that perhaps not a single man of letters, and scarcely a publisher of books, can now be found to oppose it. Not many years ago, there was an equally general feeling adverse to the measure, at least among publishers, although there never was a time when our authors did not plead for justice to their foreign brethren and themselves. So marked, yet gradual a revolution in opinion can be traced to no other cause than the power of truth. Yet it is not complete, nor will it be until Congress moulds it into the form of law, and, in conjunction with the British government, breaks down this wall of separation between two nations which else, 'like kindred drops, had mingled into one.'"

The report on *Public Hygiene*, which follows, is mainly occupied with an inquiry into the sources of typhus fever and the means suited to their extinction. The inquiry is divided into two parts, the first relating to the origin of typhus from the excretions of persons in health, and the second to its origin from the excretions of persons in disease.

The subject is a highly interesting one, and it is treated by the committee in an able and satisfactory manner. The extent of the various excretions given off by the living body in a state of health—their baneful effects upon the health of those who are exposed to their influence, and the fact that they

may become the sources of a febrile miasm, when from a neglect of domestic and personal cleanliness—defect of ventilation, or the overcrowding of houses or neighbourhoods or communities, these excretions are allowed to accumulate. The committee, it is true, have developed no new facts in relation to this subject; they have, however, presented one class at least of the facts bearing upon it, in a more prominent point of view than has been heretofore done—we allude to those which relate to the extent and nature of the effete matter expelled from the system in a given time.

The following remarks upon the communicability of typhus fever express, we are convinced, the correct exposition of this most important question.

"Many distinguished pathologists regard typhus as springing exclusively from a specific *contagion*. That the disorder is communicable, under certain circumstances, there is no question. The communication, however, is effected by the transmission of a principle which, in its nature, and mode of origin, has no analogy with the poisons of small-pox, measles, and scarlet fever. The poisons of these diseases are the products of specific morbid secretions, or vital processes which are respectively *sui generis*, whilst the poison of typhus consists of the ordinary excreted matters chemically altered in their properties. As then, the excrementitious emanations from a typhus patient may be transmitted to a person in health, and in him produce typhus, the disease, of course, may be said to be communicable. But as the poisonous material communicated is totally unlike a specific contagious virus, the disease in question cannot with propriety be considered *contagious*. The disorder is strictly the effect of a chemical aëriform poison, and as this originates from human excretions, the poison is correctly denominated *idio-miasma*.

"The excretions of patients affected with any form of disease may produce typhus fever; only, however, when they are accumulated and long pent up in confined apartments, or when they are highly vitiated or putrescent, at the moment of their elimination from the body, which is generally their condition in the more malignant forms of typhus. But even when in this form they are rarely the cause of fever—if the persons, clothing, and bedding of patients be preserved clean, and pure air be freely admitted to their apartments.

"From inquiries instituted to determine from which of the special excretions of persons in disease *idio-miasma* mostly originates, it has been found that the cutaneous and pulmonary transpirations generally furnish the elements of the poison. It is true, these excretions are variable in quantity, especially in febrile disorders, being sometimes greatly diminished, and at other times excessive. At no time, however, are they entirely suppressed. Febrile heat, though usually attended with a decrease of exhalation, promotes evaporation, and hence in part the dryness of the skin. When not apparent to the eye or touch, the cutaneous emanations are often manifest to the sense of smell. Edwards, in his work on the 'Influence of Physical Agents on Life,' expresses the opinion that the perspiration can never be entirely suppressed, and Dr. Southwood Smith, in speaking of the odour which belongs to a typhus fever patient, remarks that 'it is so characteristic, that a person familiar with the disease might in many cases be able to pronounce, merely from the odour of the effluvia that arises from the body, whether the disease were fever.'

"With respect to the urine and fæces of the sick, they are discharged occasionally, and are commonly removed from the apartment immediately or shortly after they are voided, and hence they are, in general, comparatively innocuous. It is only, or, for the most part, when these evacuations occur involuntarily, or are allowed to remain in the room of the sick, that they are sources of a fever poison. It is then to the excrementitious matter thrown off from the lungs and skin of diseased persons that the poison of typhus is mostly traceable. Such matters, transformed into a febrile principle, and diffused in the air, constitute what Dr. Miller denominates *atmosphera idio-miasmatica*. Every patient affected with typhus in its gravest form, in a close apartment, is surrounded by such an atmosphere, and it is by the attendants and others coming within the circle of its influence that the disease is propagated. When many typhus

patients are assembled together in a close and narrow space, the miasmatic atmospheres of the sick gradually widen their circles of activity, until, meeting and blending together, the whole place becomes pestiferous. The liability of nurses and physicians of contracting fever in an infirmary is generally proportionate to the number of typhus cases admitted into the wards. Dr. Christison says that it has been invariably remarked, that the admission of a few cases into a general ward is attended with little or no risk of the fever passing to the other inmates of their wards. But so soon as the cases exceed considerably a third of the whole, then the fever begins to show itself among the domestic attendants, and to appear among the other patients. Similar observations have been made in the New York Hospital. It has been remarked by an English writer, in reference to the admission of fever patients into general hospitals, that 'it has been found safer and better to have them scattered as single cases through different wards, instead of congregating them together into one;' and adds, that this plan has been adopted in more than one of the London hospitals; and we believe that there has been, on the whole, no cause to regret having followed it."

The difference which is thus pointed out between the contagiousness and communicability of diseases is unquestionably well founded, and has an important practical bearing. Numerous well-authenticated facts have induced us to believe that persons coming from places in which the air has become infectious, whether from local causes or a general epidemic influence, may carry with them an atmosphere capable of producing disease in a remote locality, or when an epidemic is impending of hastening its outbreak, even when they exhibited no indications of being themselves affected with the disease. This of course can only happen when the individuals alluded to are entirely neglectful of personal cleanliness, and during their passage from the infected localities are placed under circumstances where a free ventilation is precluded, as is too generally the case with poor emigrants in crowded vessels. The tenacity with which the peculiar atmosphere in which a person passes a large portion of the day adheres to his person, and which often can be got rid of only after the most thorough ablution and an entire change of clothing, must have struck every one who has paid any attention to the subject.

In passing from the etiological to the hygienic view of this subject, the committee indicate, in brief outline, the measures to be pursued to prevent the production of the idio-miasma giving rise to typhus fever. The question involves the entire subject of public and private hygiene. In the summary given by the committee, correct general principles are laid down—to point out the plan for carrying these principles out would require a series of reports, each far more voluminous than the one before us.

To the present report are appended two well drawn up and most instructive expositions, the first of the Sanitary Condition of Massachusetts and New England, by Dr. Edward Jarvis, and the second of the Hygienic Characteristics of New Orleans, by Dr. J. C. Simonds.

The general conclusion of Dr. Jarvis is full of truth, and shows the importance of renewed efforts being made to induce the legislature of every State in the Union to provide by law for a proper registration of the births, marriages, and deaths, which annually occur within its limits. The important results of such a registration are too little understood and appreciated by a portion at least of our own profession.

The conclusion of Dr. Jarvis is as follows:—

"A sanitary survey of this and of every other State would, I fear, demonstrate an inequality in the distribution of life in various places, and among various classes of people, such as few, either of the philanthropists or political economists, now suspect. And, when these facts shall be demonstrated, the

way will be open to the discovery of many of the causes of disease and death, some of which certainly, many of which probably, can be removed, and the health of man thereby be increased, and his life prolonged."

There is one result developed by Dr. Jarvis, in his examination and comparison of the registration of deaths in the city and country, in the States of Massachusetts and New York, which would not certainly be anticipated; it is that

"The diseases connected with respiration are much more prevalent in the country than in the city of both States; being in Massachusetts an excess of thirty-two per cent., and in New York twenty-eight per cent. of the pulmonary diseases that are not of the endemic or epidemic class. *The difference in favour of the cities in respect to consumption is still greater.* The deaths from this disease were thirty-eight per cent. more in the rural districts of both States than in Boston and New York."

"Compared with the number of deaths, consumption," remarks Dr. J. in another place, "destroys more in the country than in the cities of England. But the whole number of deaths from this cause, in proportion to the living, is greater in the cities than in the country. It may be so in America, but we have no facts to determine the question for this or any of these States."

We shall indulge in one more quotation from the highly interesting paper of Dr. Jarvis. It relates to the average duration of life in the different classes of society.

"The sanitary inquiries made in England and France have discovered very great inequalities of life and health among people of different classes, and in different conditions. Thus, according to several tables in the 'Report on the Sanitary Condition of the Labouring Classes of England and Wales,' prepared by Edwin Chadwick, Esq., of London, in the families of the

Prosperous classes	1088	died at an average age of		42.6	years
Middling classes	4791	"	"	29	"
Poor classes	19,849	"	"	20.4	"

"In the families of the more comfortably situated, only twenty per cent. died under the age of five years; while among the poor, fifty per cent. of those who died had not passed that age.

"Among the prosperous, 46 in every 100, and among the poor only 8 in 100, lived to their 61st year.

"I have had an opportunity to make some limited inquiries in this State relative to the life and mortality of the various classes of people; and these have led me here to the same results as Mr. Chadwick reached in England: that, wherever there is a diversity of outward circumstances, there is a diversity of vital force, a difference of health and of longevity; that external poverty is but a sign of inward poverty, of a weak body and feeble mental and moral power; and that, generally, what the world calls poverty, the want of estate, or destitution, is not a thing of accident, or of external circumstance, but it grows out of the man, and is a necessary consequence of the quantity of vital force that belongs to him—to his body and to his mind.

"I analyzed the bills of mortality of this town, Dorchester, and divided all the persons who had died into four classes: 1st. Farmers who owned their farms. These are generally the most discreet, quiet, comfortable, and prosperous people. 2d. Labourers, including all who work at day labour or on wages, without capital. 3d. Master mechanics. 4th. Merchants, capitalists, professional men. These classes included all who had died in the course of twenty-seven years, which was as far back as I could trace their condition with any certainty. There were 1767 deaths in this time. The average longevity of all was 32 years, 6 months, and 18 days."

The average longevity of the 1st class was 45 years, 8 months, and 6 days; of the 2d, 27 years, 5 months, and 14 days; of the 3d, 29 years, 6 months, and 21 days; and of the 4th, 33 years, 2 months, and 27 days.

Dr. J. states that a similar result was obtained from an analysis of the bill of mortality of the town of Brooklyn, during a period of 46 years. The average longevity of the 1st class being 39 years, 0 months, 12 days; of the 2d, 27 years, 7 months, 8 days; of the third, 24 years, 2 months, 17 days; and of the fourth, 29 years, 3 months, 3 days.

The same kind of result, he adds, was obtained from an analysis of the mortality register of the town of Concord during a period of 63 years.

We are presented next with the report of the *Committee on Adulterations and Sophistications of Drugs, Medicines, Chemicals,* etc. This committee have well performed the duties enjoined upon them, and have presented a report which embodies much interesting information, and a series of judicious suggestions.

The securing to the community entire purity as well as a genuineness in the various remedial agents demanded for the treatment of disease, is a subject of no trifling importance, inasmuch as upon it depends the chances of safety for the sick, as well as much of the certainty of clinical medicine.

The provisions of the act of Congress directing an inspection of all drugs and chemicals imported from abroad, provided proper care is taken to appoint competent agents to carry these provisions into full effect, are probably sufficient to protect us, as far as can be expected, from the introduction of sophisticated and adulterated medicines from foreign markets, but it becomes next a question, "whether cupidity, aided by science, and the characteristic ingenuity of our countrymen, will not soon supply, if not exceed, the abuses from former sources."

This important inquiry has elicited much attention on the part of the committee, and their conclusions in respect to it are upon the whole satisfactory. That domestic sophistication of drugs does exist to a certain extent is an unquestionable fact; but "it is satisfactory to learn," quoting the words of the report before us, "that thus far there does not appear to be any *increase,* but probably a *diminution,* in the domestic sophistication of drugs. Certainly, if we leave out those whose chief business consists in the scandalous fabrication and sale of *nostrums,* adulterated medicines are not commonly vended in our large cities, excepting under the particular circumstances presently to be mentioned."

These circumstances are the practice pursued by druggists of respectable character, without intention of fraud, of making and vending some of the most important officinal articles of different grades, and of providing low-priced articles for those whose only aim is to buy them cheap.

These inferior and adulterated drugs, we are informed, are chiefly disposed of in the southern and western portions of the United States, to the physicians and people residing in the small towns and villages, and sparsely populated districts. In the large cities, particularly in the Atlantic States, bad drugs are, as a very general rule, dispensed only by inferior apothecaries.

Among the plans which have been suggested to prevent, as far as possible, the sophistication of drugs and the sale of those which are spurious or of inferior quality at home, the committee believe that the following may be considered as the most important.

1st. The passage of laws by the different State legislatures providing for the appointment of inspectors, and making it a penal offence to deal in adulterated drugs or medicines.

"It is difficult," the committee remark, "to understand why fraud in the manufacture and sale of medicines, which have so important an influence on the health and lives of the people, should not be punished with the same se-

verity as debasing and counterfeiting money, which merely affects their pecuniary interests. The past history of state legislation, in relation to the practice of medicine, affords little hope, however, that any salutary laws on this subject can be procured in many or all of the States of the Union; and, without a general concurrence of action, no good will be accomplished. It is to the members of our own profession, therefore, in conjunction with the respectable druggists and apothecaries, that we must look for whatever reformation is to be accomplished.

"2dly. It has been suggested that physicians should feel it to be their duty to inspect the medicines in the drug stores from which they are in the habit of obtaining supplies for themselves or their patients. This would exercise a wholesome influence, if submitted to by the apothecary, and frequently performed by the physician; neither of which, however, is very probable. A more effectual plan, because of its being more likely to be carried out, would be for the various State medical societies annually to appoint a board of examiners, who should procure samples of different articles from the drug stores within their limits, analyze and otherwise examine them, and publish the results. If this were impartially and skillfully done, it would excite the ambition of the meritorious, and control the less scrupulous."

"3dly. The co-operation of the druggists and apothecaries, in discountenancing and putting down the traffic in inferior and adulterated medicines, should be solicited. For this purpose they should be encouraged to institute pharmaceutical associations in every considerable town throughout the country, which, more than anything else, would tend to elevate the professional and moral standing of their craft. Men who are in the habit of meeting together for laudable purposes are far less liable to plunge into bad practices than the isolated being whose better feelings are not warmed by association. The establishment of such societies has always been salutary. In Philadelphia, the institution of the College of Pharmacy, with its cabinet, its lectures, and excellent quarterly journal, which is published regularly, has raised the character of the apothecaries to an enviable height; and in the city of New York, where a like organization has been more recently formed, similar effects are observable.

"4thly. In making their purchases of medicines, physicians should be willing to pay fair prices, and be careful to procure them only from the most respectable druggists. Men of this character, selling in large quantities, never demand exorbitant profits, and it is not to be expected that they will sell good articles at a loss.

"A large amount of the inferior qualities of drugs passes through the hands of country shopkeepers, who deal in dry goods, groceries, hardware, &c.; with people who are such indifferent judges, articles are selected that afford the largest profits, and the quality is pretty certain not to exceed the price.

"A class, worse even than this, of whom to purchase medicines, are druggists whose advertisements are chiefly filled with nostrums and secret preparations. They who deal with men of this description, besides exposing themselves to the risk, amounting almost to certainty, of being cheated, may be regarded as active supporters of the worst kinds of quackery."

The Report of the *Committee on Indigenous Medical Botany* is made up of a paper of Dr. Ives, giving his experience on the virtues of certain plants, and another by Dr. Barratt, on the indigenous plants of Abbeyville District, S. C.

The plants embraced in the paper of Dr. Ives, are the Isnardia palustris, the Senecio aureus, the Neottia pubescens, the several varieties of the Cypripedium, the Cornus circinata and florida, and the Epigea repens, upon the remedial properties of each of which some interesting remarks are made, based mainly upon an experience of more than forty years.

The paper of Dr. Barratt is simply a catalogue on the indigenous plants of the District of Abbeyville—with a bare mention of their medicinal properties or supposed curative powers, excepting in the case of the Cotyledon umbili-

catus, the Gossypium herbaceum, the Anda gomnesii and Helonias dioica. Of the virtues of the first of these we have some account from Parkinson, who wrote in 1640, and from Elizabeth Bakewell, whose *Herbal* was published in 1737, and a reference to some cases of epilepsy detailed in the *British and Foreign Med. and Chirurg.-Review* for January, 1850, in which this plant was used with apparently good effects. Of the efficacy of the seeds of the Cotton plant in intermittent fever, we have the testimony of Dr. W. R. Davies, of South Carolina—which is such as to direct a more extensive investigation of its remedial powers in that disease. The Helonias dioica is recommended by Dr. Braman as a remedy of unquestionable powers in leucorrhœa.

The Report of the *Committee on Surgery*, with its appendices, is one of the longest which occurs in the present volume. The subject of Anæsthesia is first considered. In the body of the report, the chief question which is discussed is as to which of the anæsthetic agents is to be preferred. The testimony of some of the most distinguished surgeons in our country is adduced in favour of each of those now in use, some giving a preference to pure sulphuric ether, others to chloric ether, others to chloroform, and others again to a mixture of chloroform with sulphuric ether. The conclusion to which the committee comes is thus expressed:—

"Were we to employ any other anæsthetic than the simple chloroform, we should select the mixture of it with ether, one measure to two, as practiced by Professor Atlee. From several trials we have made, we think the pulse is rather better sustained than under the chloroform alone."

In addition to what is said in favour of inducing anæsthesia in all important surgical operations, in the body of the Report, we have appended to it a paper by Dr. J. C. Warren, in defence of the practice, and in recommendation of chloric ether as the most advantageous agent. Another paper by Dr. W. T. Atlee, in pointing out the safety and advantages of anæsthesia, and another by Dr. S. D. Gross, on the use of chloroform as the best anæsthetic agent.

It is not our intention to notice in detail the several subjects embraced in this report. The particular surgical diseases and accidents in reference to which any important observations or improvements have been made by American practitioners within a short period are clearly stated, and occasionally enforced or illustrated by the experience of the gentleman, Dr. Mussey, by whom the present able report was drawn up.

Among the appendices to the report is a valuable communication by Dr. J. C. Warren, on the result of operations for the cure of cancer. Eight cases are detailed—four scirrhomatous and four cephalomatous—in all of which the operation appears to have effected a complete eradication of the disease.

"Three of the scirrhomatous cases," remarks Dr. Warren, "occurred after the middle period of life, the fourth at that period. In all four cases, the patients enjoyed a good state of health. One of them, the first, was quite remarkable throughout her life, subsequent to the operation, for her strength of mind and full possession of her bodily faculties, till near the period of her death. Of the four cephalomatous cases, none exceeded thirty at the time of the operation. All are perfectly well, and with appearances which indicate that they may never experience a return of the encephaloid disease."

Dr. Warren is evidently of the opinion that cancer in a large number of cases is strictly a local disease, and that the diseased part may be extirpated, and the whole mischief be in this manner got rid of. And he hints that a correct history of all the cases of cancer for which operations have been performed with their results would support this conclusion. We confess that our own opinion has been the reverse of that of Dr. Warren. It may be that

the change of organization and nutrition is occasionally strictly local—and we hope that future investigations may prove it to be so; so far, however, the facts at present in our possession would seem to lead to the opposite conclusion.

In an appendix to the present volume of Transactions is contained some observations by Dr. N. S. Davis, of Illinois, undertaken to ascertain how far the cerebellum has any special connection with the sexual propensity or function of generation. He compared the measurement in a variety of directions, as well as the weights of the cerebellum in the brains of a number of bulls and oxen, all of the same age, and, as nearly as possible, of the same general size and variety of stock. The average of the several measurements and weights, and the extremes, are presented. Dr. Davis then remarks—

"It will be seen that these examinations not only confirm those of M. Lassaigne, so far as the relative and absolute weight of the cerebellum of the castrated animal is compared with that of the same age not castrated, but the measurements equally refute the *moderate phrenological view* mentioned by Carpenter, which, as we have already said, makes the central part and vermiform processes the organ of sexual appetite, and the lateral lobes the co-ordinates of motion. On the contrary, so far as our measurements indicate any difference, it consists in the greater relative development of the central part and vermiform processes in the ox than in the bull. And if the cerebellum of the ox is deficient in any part, it is in the size of the *lateral lobes*. But on the most careful examination of half a dozen cerebelli of bulls and oxen, lying side by side, I could detect no constant or uniform variation either in their absolute size or the relative development of their several parts. Now, unless we deny the validity of the physiological law, so much insisted on, especially by phrenologists, that exercise increases growth, and *vice versâ*, it must be conceded that the facts here adduced in reference to the cerebelli of oxen and bulls, added to those presented by M. Lassaigne in reference to the gelding and stallion, effectually disprove the existence of any *special* connection between the cerebellum, either as a whole or in any of its parts, and the sexual appetite or function of generation."

A description is next given by Dr. John Evans, of Illinois, of an obstetrical extractor, adapted, in his opinion, to supersede the forceps—being free from many, and the most serious, of the objections to which the latter is liable.

The principle upon which it operates is that of placing a band around the head of the child above its largest diameter, and fixing the ends near together, by articulated steel fingers, so that it cannot be drawn off. From this band straps pass down to the vertex, and out through the os externum, to be grasped by the hand, and upon which the extractive force is exerted. The band is applied after the manner of passing the ligature around a polypus by Gooch's double canula.

The form and mode of application of the instrument cannot be well understood without the drawings which accompany the description.

We can see no difficulty in the application of Dr. Evans' extractor—but doubt whether it will be found superior to a well-constructed forceps. One objection which strikes us is that the material of which the instrument is principally constructed—silk bands and braids—must necessarily become imbued with the discharges from the vagina and uterus upon each application of it, without the possibility of its being effectually cleansed previously to its being again used. Consequently, either a new instrument must be provided for each case, or we shall run the risk of subjecting our patients to the influence of morbific matters retained by the instrument.

The volume concludes with a "Brief Notice of some of the Physicians of the United States who have died within a few years;" collected and arranged by Dr. Stephen W. Williams, of Massachusetts.

These notices, though not drawn up with all the care and neatness that were

desirable, are nevertheless interesting. To Dr. Williams we return our thanks for thus presenting a brief memorial of those members of our profession who have recently departed from our midst, and we trust that the same thing may be repeated by him or some other member of the Association at each of its sessions, so that a necrology, at least, may be preserved of the deceased members of our profession. The knowledge that a record of his name and professional character will be made and thus handed down to those who shall live long after he has ceased to be, will not unfrequently act as an additional incentive to the physician to exert every energy of his mind and heart to render that record one of honour and distinction.

We have thus sketched out a partial notice of the more important contents of the volume before us. Our purpose has been rather to direct attention to the matters embraced in the reports and other papers of which the volume is composed than to give a full analysis of them. Those of our readers who feel an interest in the doings of the Association, and in the influence which that body is destined to exert upon the character of the medical profession in this country, will of course procure for themselves a copy of the Transactions.

The general character of the reports comprised in the present volume is equal, if not superior, to that of the reports contained in the two preceding; they do great credit to the talents and industry of the gentlemen by whom they were prepared. They are more strictly confined to a history of the progress of American medicine, and to subjects bearing immediately upon the interests of the medical profession in this country; they exhibit also the evidences of perfect candour and an honest desire to reform, as far as possible, any evils under which the profession may labour, and to elevate it to its appropriate rank of a learned and liberal profession.

It has been said that the American Medical Association will ever fail in carrying out the objects for which it was organized, from its inability to enforce compliance with its requirements, or to carry into full effect any one of the reforms it may suggest. It is true that the Association has no legal means to enforce its decisions, but it has the slower, it is true, but perhaps more certain, influence of moral power. It can, by wise counsel, and unity of action, so mould public opinion as effectually to subserve the objects it was intended to accomplish. It is impossible that the deliberations and recommendations of a congress, composed of a large body of the most experienced and talented physicians, assembling annually from every portion of the Union, and bearing with them the respect and confidence of their professional brethren and of the communities in which they reside, can fail to carry with them sufficient influence to insure the adoption, finally, of every reasonable reform in medical education and ethics, and thus to ensure the elevation of the character of the American physician. D. F. C.

Art. XVIII.—*A Dissertation upon Dislocations and Fractures of the Clavicle and Shoulder-Joint, being the Jacksonian Prize Essay for* 1846. By Thomas Callaway, F. R. C. S. Demonstrator of Anatomy to Guy's Hospital, &c. &c. &c. 8vo. pp. 178 : London, 1849.

It is impossible to devote too much study to the injuries of the upper extremity; and, therefore, although in all the systematic treatises on practical surgery fractures and dislocations occupy prominent places, and although there are many voluminous works extant devoted to these subjects exclusively, we

always peruse with pleasure every new volume in which a competent observer discourses on these topics.

The book before us has attracted very kind attention at home and abroad. A glance at the table of contents shows that the author has adopted the proper course in conducting his studies. He first describes very carefully and truthfully the *anatomy* of the parts concerned in the injuries which he is about to explain, and then points out the alterations of structure and function impressed upon them by accidental causes.

We pass over Mr. Callaway's observations concerning *the bones*—the clavicle, scapula and os humeri—and pause for a moment at the section in which he describes the *scapulo-humeral articulation*. The bones which enter into this articulation are the head of the humerus and the glenoid cavity of the scapula. "The ligaments of the true cavity are, the glenoid; the capsular, with its synovial membrane; the coraco-humeral, or accessory; and the *long head of the biceps*, or intra-articular." It will be perceived by the above quotation that the author ascribes to the long tendon of the *biceps muscle* an office additional to that which it possesses in virtue of its connection with the fibres of the muscle. His remarks on this point are so interesting that we will quote them somewhat in full; he acknowledges his indebtedness to Mr Hilton, of Guy's Hospital, for the physiological views expressed with reference to the function of the tendon; they are similar to those published by Mr. Soden in the *Med.-Chir. Transactions* for 1841. "The *glenoid ligament* is a band of fibrous structure, oval in its form, which runs around the rim of the cavity, and, by elevating its margin, serves to deepen it; it is formed by *the splitting of the long head of the biceps*, which, bifurcating at its upper border, passes round and again becomes united at the inferior margin of the cavity." "The long head of the biceps is of so great importance to the integrity of the shoulder joint, in *directing the head of the humerus*, that it has been very properly considered as an inter-articular ligament by some anatomists; by surgeons, however, its importance has been rather overlooked or undervalued. It arises from the upper part of the glenoid cavity (being most intimately connected, or rather identical, with the glenoid ligament itself), passes over the head of the humerus and under the capsular ligament; being perfectly independent of either, it is entirely invested by a synovial sheath of its own, and holds much the same relation to the cavity of the shoulder that the ligamentum teres does to that of the hip. Having arrived at the margin of the anatomical neck of the bone, it passes between the two tuberosities and down the bicipital sulcus to the belly of the muscle, whose great natural contractile power, being further stimulated by the constant action of the forearm, tends to keep the tendon tense; otherwise it would be constantly liable to be thrown into a fold, or, becoming lax, to impede the motions of the joint. It will thus be seen that the tendon, in some measure, tends to render the capsule of the joint incomplete; it, however, forms about one-third of a circle, which, together with the concavity of the glenoid fossa, makes about two-thirds of a circle, and compensates in no slight degree for the shallowness of the cavity. Let us suppose that the deltoid be put in motion; the head of the humerus *ought* to be brought *directly upwards*, and would, without doubt, impinge against the under surface of the acromion arch. This, however, does not take place; the polished hemisphere of the humerus is carried against the under surface of the tendon, which, acting as a curved director, guides the rounded head of the bone inwards and backwards against the glenoid cavity." This fact is well illustrated by two diagrams, in one of which the tendon is exhibited *in sitû*, and in the other it is divided.

The capsular ligament (a bag so long and lax that when the supra and infra-

spinatus, the teres minor, and subscapularis muscles, which are intimately connected with it, and which tend, more or less, to support the head of the humerus, are cut away, the latter falls down from the scapula an inch or more), is strengthened in its turn by fibres sent from the tendons of some of the muscles about the joint. Thus this important articulation, admitting of such almost unlimited motion, and exposed to so many sources of accident, is wisely and sufficiently protected.

The description in the text of the muscles situated about the bones and joints is very satisfactory and well worthy of an attentive perusal. But we cannot dwell upon it. We pass to the *Fractures of the Clavicle.*

Mr. Callaway does not treat at all of the process by which a fracture of the bone is repaired. With reference to fracture of the clavicle, he merely remarks that this is accomplished for this bone sooner than for any other, and fixes the time at which a laborer may return to his work at the *end of the fourth week.* We think, from the experience which we have had in this matter, that the addition of a week to this allotment would be a much safer limit.

The clavicle, from its slender proportions, delicate structure, and exposed situation, is very often fractured; and though the rupture of the bony fibres may take place at any point, it occurs more frequently, perhaps, at the point at which the two arches of the bone unite—at about its middle. Nevertheless, for convenience in describing the evidences of this lesion, the author considers the injury as occurring either within or without the point of attachment of the *coraco-clavicular ligament.* And this division is a very good one, because the symptoms of the two fractures are very dissimilar, and because, too, the phenomena attending the accident at points within the one named present merely shades of modifications.

The signs of the *intra-coracoid* fracture are well detailed—they are generally unmistakeable. But some little variety of explanation exists with reference to the *causes* of the deformity. The outer fragment is drawn downwards by the weight of the arm, and perhaps by the action of the deltoid, and forwards and inwards by the contraction of the pectoral and subclavius muscles, so that it is overlapped by the outer end of the internal fragment. The latter is supposed by some to remain stationary; by others, and by Mr. Callaway also, it is said to be tilted *upwards* by the action of the sterno-cleido-mastoid muscle. But it seems to us that this muscle cannot exert any such power upon it, partly because of the unfavourable direction of its fibres, but chiefly because the sterno-clavicular and costo-clavicular ligaments would be opposed to any such effect; and their passive influence would be aided, in all probability, by the action of the subclavius, and also of the pectoralis major.

In some rare instances, it happens that the outer fragment presents its inner extremity above and in front of the sternal portion. Again, it not unfrequently occurs, as we have had more than one opportunity of observing, that a fracture may involve the middle of the bone, and there shall be no displacement. This latter variety is usually met with, as the author mentions, in young people. Besides the cases to which he alludes, we will mention one which came under our own inspection. A stout healthy boy about seven years old was brought to us, said to have fallen upon his shoulder and broken his collar-bone. He complained of inability to move his arm, and suffered pain, particularly about the middle of the clavicle, when the arm was moved for him; there was tenderness and soreness at the same point; no swelling, no evidence of contusion, and we could not detect the slightest crepitus upon careful and varied manipulation. We placed the arm in a sling, and dismissed the boy, assuring his mother that it was "only a bruise." A few days afterwards, while in

the act of throwing a stone, a separation of the fragments occurred at the middle of the bone, and all doubts as to the reality of the fracture vanished. In such cases, the fragments are maintained in apposition, as the author observes, by the integrity of the periosteum covering the bone.

The *extra-coracoid* variety of the injury is attended with much less deformity, as a general rule. Mr. Callaway says of it: "From its very simplicity and want of obvious symptoms, it is oftentimes overlooked, its characteristic being a negative one, viz., the *absence of displacement.* In this accident the motions of the arm are impaired, but to no considerable degree; measurement of the two shows no difference. I have, however, observed a somewhat drooping inclination in the affected shoulder." The reality of the injury can, however, as he remarks, be almost always, if not invariably, recognized by a thorough examination—crepitus being usually detected. He is careful to indicate how this sign may be best elicited.

In examining into the causes of the non-displacement after this fracture, Mr. Callaway ascribes this exemption to the integrity of the coraco-clavicular and coraco-acromial ligaments, which, holding both fragments in their grasp, prevent any dislocation; he considers the breadth of the fractured surfaces as of very secondary consequence, and that too small a portion of the deltoid muscle is brought to bear upon the inner fragment to serve any effect of importance.

We do not think that Mr. Callaway has sufficiently called attention to the distinction to be drawn between fractures occurring *exterior* to the *trapezoid ligament* and those which involve the bone *between this and the conoid.* And yet this distinction is important, because in the former there is considerable displacement, while in the latter there is scarcely any. This fact has been established and explained by Dr. R. W. Smith, of Dublin. Mr. Callaway, indeed, refers to the investigations of Dr. Smith, and pays him a well-merited compliment; he also quotes the following passage from a paper published by this gentleman in the *Dublin Journal* for 1841, suggested by the examination of a series of fractures of the clavicle, occurring between the conoid and trapezoid ligaments: "In all the fracture had united; in some without deformity, but in the greater number the deformity resulting from the injury remained, and in each specimen presented nearly similar characters —the fragments being united nearly at a right angle, which was salient upwards and backwards, the infra-clavicular space was considerably diminished by the displacement consequent upon the fracture; in every one of the specimens a remarkable process of bone, varying from a quarter to three-quarters of an inch, had sprung from the under surface of the clavicle at the seat of fracture. This portion of bone is generally to be found when fracture has traversed the bone between the conoid and trapezoid ligaments. In none of the specimens was there any overlapping of the fragments." We have not been able to see the volume of the Journal from which this extract is made; but the opinions expressed therein are very different from those which we find in Dr. Smith's recent and most valuable "Treatise on Fractures in the vicinity of the Joints," &c.; and as Mr. Callaway has seen this book, he should have referred to it for the author's more mature views on this subject. In this volume, we find that Dr. Smith's opinions are based upon the examination of *eight* specimens of fracture of the outer end of the clavicle, in *five* of which the bone was broken between the trapezoid ligament and the acromion process of the scapula; in the remaining *three* between the conoid and trapezoid ligaments. He says: "From the examination of these preparations, we learn that the outer extremity of the clavicle may be broken either between the coraco-clavicular liga-

ments, or between the trapezoid ligament and the acromion; and that fracture in the *former situation* is of comparatively rare occurrence, and attended with *scarcely any displacement* of either fragment of the bone; but that in the latter, contrary to what is usually stated, there is generally a *considerable amount* of *displacement.* When the bone is broken between the coraco-clavicular ligaments, it is manifest that, if these structures have not been injured, there can be but little displacement of the fragments, according to the thickness of the bone, although there may be a slight derangement as regards its direction" —p. 215. Again, at p. 217, he says, "When the clavicle is broken between the conoid and trapezoid ligaments, there is, in general, so little external deformity, that it is sometimes difficult to detect the true nature of the injury." "But the case is very different when the bone is broken external to the trapezoid ligament. Here the coraco-clavicular ligaments can have no direct influence upon the outer fragment, which is displaced partly by muscular action, and partly in consequence of an alteration in the position of the shoulder." "When this displacement is carried to the utmost, the two fragments, as in several of the specimens which have been described, form a right angle with each other, the outer being placed in front of the inner, and a small portion only of the articulating surface of the former remaining in contact with that of the acromion"—pp. 215–16. "When an examination is made, the outer fragment will, in the majority of cases, be found to be slightly depressed below the level of the inner, and the anterior part of the affected shoulder is approximated, to the amount of from one-fourth to three-fourths of an inch, toward the sternum. In one case, the *inner* fragment, as well as the outer, was depressed, thus increasing the usual deformity to a great degree"—p. 218.

It would seem, therefore, from these quotations, that Mr. Callaway has confounded the remarks of Dr. Smith, ascribing to him views concerning the fracture between the coraco-clavicular ligaments which we find him entertaining, for the most part, with reference to that which has occurred between the acromion process of the scapula and the trapezoid ligament.

Dr. S. attributes the displacement in the latter fracture to the influence of the action of the trapezius muscle on the one side, and of the weight of the shoulder and the action of the deltoid and pectoral muscles on the other; while at the same time the scapula is made to perform a partial revolution on its axis, drawing with it the outer extremity of the clavicle forwards; this revolution being effected by the contraction of the rhomboid muscles, which approximates the inferior angle of the scapula to the spine, while the superior angle falls away from the spine in obedience to the weight of the arm.

The commonly received opinion, that there is no displacement after fracture of the clavicle exterior to the coraco-clavicular ligament, must therefore be admitted with some modification.

Mr. Callaway justly observes that *compound fracture* of the clavicle is very rare, unless the complication be caused by *direct violence.* But he contends that this does not produce "a true compound fracture, which, to my apprehension," he says, "consists properly of wounds communicating with *and caused by* the fractured bone. The practical bearing of the distinction is this—the violence which produces the fracture and consequent wound breaks up the cellular tissue investing the neighbouring muscles and soft parts, into which the air, becoming admitted, induces those enormous and formidable suppurating cavities in the limb which we find so frequently after compound fractures. In short, it seems that the distinction between a simple or a compound fracture is, that the former heals by the adhesive and the latter by the suppurative process of inflammation"—p. 62. Now, by this very feature, a fracture which is accompanied

by laceration of the integuments, so situated and of such extent as that the air has free access to the broken bone at the point of fracture, *is a compound fracture*, whether the wound in the soft parts has been produced by the protrusion of the fragment, or by a direct external blow. For in both cases the reparation is rendered slow by the same untoward conditions, and in both its progress is attended by the formation of similar "enormous and suppurating cavities."

With respect to the best means of retaining in proper apposition the fragments of a broken clavicle, and of preserving the normal form of the bone, we think that Mr. Callaway is not so well informed as he should be. Admitting the correctness of the *principle* laid down by Desault, and it is undoubtedly correct, Mr. Callaway recommends Desault's *method of treatment*, or a modification of it, which differs from the original only in omitting the first roller, and the sling for the support of the forearm and hand; and in this latter particular it certainly is not an *improvement* upon the original. "The objection to this bandage is," he says, "that, owing to the pressure it makes upon the mammæ and thorax, it is not well adapted to females; it requires some little skill in bandaging, and is very apt to become deranged. Still, it has a neat look; if it excoriates, the part can be cut; its application does not terrify the patient, and, above all, pressure can be better regulated by a roller than by any other apparatus"—p. 65. We submit that the objections, as above announced, *far outweigh* the assumed merits of this dressing. But, in addition to those disadvantages, we urge that it does not fulfil all the indications of treatment, inasmuch as it does not force the shoulder *backwards* as completely as is generally necessary; that it is entirely unsuited to compound fractures, and that, in order to examine the position of the fragments and the condition of the integuments at any time after this bandage has been applied, it is requisite to remove at least one roller, and that one which is supposed to fulfil a very important part of the treatment. And with regard to its chief merit, as Mr. Callaway considers it, viz., that "pressure can be better regulated by a roller than by any other apparatus," we ask what prudent intelligent surgeon would attempt to maintain the fragments of a clavicle in apposition by *direct pressure exercised upon them*? Instead of this cumbersome, uncomfortable, and comparatively inefficient apparatus of Desault, we would advise the employment of Dr. Fox's; it fulfils all the indications, produces no unpleasant compression of the mammæ or thorax, is neat and cleanly, leaves the seat of injury always uncovered and open to the inspection of the surgeon, or for the employment of any topical application, is equally well adapted to the treatment of compound as of simple fractures, and admits of re-adjustment without removing any part of it; we do not believe that its application in England will "terrify the patient." A description of this apparatus may be found in the American reprint of any English system of Surgery, and in the treatises on minor surgery published in this country. If Mr. Callaway will adopt this method of treatment, we think he will no longer have occasion to "doubt if any fracture (excepting perhaps that of the extremity of the radius) turns out so unsatisfactory," or to lament that "fractures of the clavicle do not usually turn out triumphs of our art"—p. 63. But even with this very perfect apparatus in use, we feel bound to advise him to depart somewhat from his "rule, to *pay attention to the bandage at the end of a week*"—p. 66. St. Luke himself, with all his inspiration, would have failed had he been so chary of his attentions to his patients! Mr. Callaway *must examine carefully the dressing at least once daily*, in order to be sure of the continued apposition of the fragments, and to relieve any undue pressure upon any one point. He will thus, we doubt not, be more successful

in his treatment of this interesting and important fracture than he seems to have been hitherto.

We pass to the chapter on *Dislocations of the Clavicle.* Of these, Mr. Callaway adopts the most common enumeration, viz., dislocation of the sternal end *upwards*, *forwards*, and *backwards;* and of the acromial end, *upwards*, and *downwards* under the acromion process of the scapula. In any case, the accident may be a *simple* or a compound, a complete or an incomplete luxation.

The dislocation *forwards* he considers as the most frequent of those occurring at the sternal extremity of the clavicle. His statement of the *signs* and *symptoms* of this accident is sufficiently correct and definite, although there is no detail, and nothing of the full and minute history which we expect to find in a work devoted to the consideration of a very limited number of accidents. He states as *the causes* of this variety of luxation a fall upon the apex of the shoulder, or upon the elbow when the arm is abducted from the side, and any great force applied to the anterior part of the shoulder. He has omitted one which is, perhaps, as frequent as any—a sudden and forcible drawing of the shoulder or shoulders backwards, as in the case mentioned by Boyer, of a baker's boy, who, while resting his basket, which was secured to him by straps passing around and in front of his shoulders and under the axillæ, on the parapet of a bridge, started forwards, in order to save his basket, which he felt to be falling over, and thus dislocated one clavicle forwards.

Mr. Callaway gives no cases of this accident, nor any recital of the post-mortem appearances. Indeed, neither in this chapter, nor in the preceding, does he allude to the latter important point, although he might have discovered some instances, we should suppose, in which death followed within a short time after both fractures and dislocations of the clavicle, and in which the lesions met with in both had been described. At any rate, an essay on fractures and dislocations is manifestly incomplete, which does not include a description of the appearances of the fragments of the bone, and the condition of the soft parts surrounding them, in the former class of accidents, and of the nature and extent of the injury done to the ligaments of the interested joint, together with other modifications of structure consequent upon the change in the normal situation of the bone, in the latter.

The dislocation of the sternal end *backwards* is much less frequent than the one just mentioned: nevertheless, several cases of the injury are recorded to which Mr. Callaway refers. The evidences and the causes of the displacement are sufficiently enumerated. The sternal end of the bone may be thrown *downwards* or *upwards*, as well as backwards. Mr. Callaway thinks that when this displacement is *upwards*, it is so always *secondarily*, the primary direction having been downwards behind the sternum. He attributes this change of position to the effect of the weight of the arm and the contraction of the sterno-cleido-mastoid muscle. But, we would ask, why may not this position upwards have been the *primary* situation assumed by the bone? For, unless the force which produced the dislocation have impressed upon the extremity of the clavicle a decided *direction downwards*, certainly the contraction of the sterno-mastoid and the weight of the shoulder would induce an upward motion at the moment of luxation. It must always be a matter of conjecture, on the part of the surgeon, whether a particular displacement be secondary or not, unless a different location has been actually *seen*. And in this particular instance, we think it much more probable that, when the sternal end of the clavicle is found resting behind and above the top of the sternum, it was made to assume this position, directly upon leaving its articular seat, by the tonic contraction of the sterno-mastoid, than that it was drawn from below by this

muscle; for, one of the evidences of the dislocation *downwards* and backwards is the *fixity* of the bone in this position, so that its restoration is often a matter of great difficulty.

Mr. Callaway explains very well the method of reducing this dislocation. He quotes an instance of this accident; but he omits, unfortunately, two of the most interesting and important elements in a clinical report, viz., the narration of the evidences which led to the *diagnosis* of the case, and the mode of reducing the injury. In the event of the luxation proving irreducible, and accompanied by very great difficulty or inability of swallowing, he recommends "to cut down upon the bone, pass a broad curved spatula behind it, and with Scultetus' chain or Solly's saw remove the offending portion of bone."

The dislocation *upwards* of the sternal extremity of the clavicle, Mr. Callaway considers as a *secondary* luxation—"a sequence and a consequence" of the dislocation *forwards*. In support of this opinion, he refers to the strength of the inter-clavicular and rhomboid ligaments, and he says, "I scarcely think it possible to depress the humeral end of the bone, by any violence, to such an extent as shall make the sternal end start upwards out of its place; because the entire shoulder, humerus, and scapula would have to be depressed to produce the accident, inasmuch as the accident could not be caused by the depression of the clavicle alone, as the descent of this bone would be limited by its coming in contact with the coracoid process, and its further descent prevented." And he cites an example of such a descent of the clavicle, in the instance of a milkman, who, in the pursuit of his trade, had been accustomed to carry his pails on his shoulders. In this case it was found, after death, that "both the clavicles articulated by their under surfaces with the coracoid processes of their respective scapulæ, on both sides; the sternal end of the clavicle was in proper relation with the sternum, the coraco-clavicular ligament was much shortened and thickened, and there was no appearance of a dislocation upwards." This certainly is a very interesting pathological specimen; but the change from the normal position of these clavicles was *gradually* produced by the *continued pressure* exercised upon them, and not caused by sudden violence. This instance, therefore, can scarcely be admitted as evidence against the possibility of a dislocation upwards of the sternal end of the clavicle as the result of *sudden violence* impinging upon its acromial extremity. However, be this possible or not, there is very little doubt, we think, that such a luxation may be occasioned by direct force inflicted from below and in front upon the *sternal* extremity of the bone. The action and the effect of such a cause Mr. Callaway has not noticed. We cannot, therefore, agree with him in thinking that "it is necessary for the *anterior* dislocation to take place, before the end of the clavicle shall make its appearance above the level of the sternum"—p. 77. We consider that this opinion is too *exclusive;* such a secondary change of position may take place, we doubt not, and perhaps this may be the most common mechanism of the dislocation upwards; in which case, the agents in producing this change would be, as mentioned by Mr. Callaway, the weight of the shoulder and the contraction of the sterno-cleido-mastoid muscle.

Mr. Callaway admits two varieties of dislocation of the *acromial* end of the clavicle, viz., *upwards* and *downwards*.

The displacement *upwards* upon the top of the acromion he considers, and we should think correctly, the most common variety of dislocation of the clavicle. The diagnosis of this injury is sufficiently easy, in most cases. Its causes are, according to Mr. Calloway, the obliquity of the articulating surfaces comprising this joint, and a fall or a blow upon the shoulder; the former

is a predisposing cause, the latter are efficient. The signs of this accident are very well narrated in the text. An example in point is given from the wards of Guy's Hospital; but in this instance, also, we have to regret the absence of information as to the *appearances* by which "it was immediately pronounced by the dresser to be a dislocation backwards of the acromial end of the clavicle near the scapula." To restore the bone to its proper position, "the patient was seated upon a low stool, his shoulders were forced backwards, the surgeon's knee being placed between the scapula; pressure was at the same time made upon the posterior edge of the bone." This method failed; it was again tried, with the aid of a warm bath; it was again unsuccessful, as was every other plan. At last, says Mr. Callaway, p. 79, Mr. C. A. Key "had recourse to a very ingenious plan: he took a piece of wood, well padded with lint, and having applied it to the distal end of the bone, and struck it several times with a mallet, a fair trial was given to this, and the bone, although evidently not so prominent, and somewhat moved, was still unreduced," and it remained unreduced. What end Mr. Key could have rationally hoped to accomplish by such a proceeding we cannot imagine, unless it may have been to fracture the clavicle near its middle, or to dislocate its sternal extremity, for such was most likely to have been the result of the operation of this "very ingenious plan."

Another example of this accident is given; it occurred a few weeks only after the former, and was also treated in Guy's Hospital. The dislocation was occasioned by a fall upon the tip of the shoulder, while the patient was wrestling. Again, the narration of the appearances is meagre in the extreme. "Examination by Mr. Foster, the dresser, showed a well-marked injury. The anterior edge of the trapezius was observed to be tense and well defined." In this case the reduction was accomplished; the surgeon placed his left arm in the axilla, and taking the elbow of the affected side in his right hand, pushed it upwards, backwards and outwards; the bone immediately returned to its place.

The displacement of the distal end of the clavicle *downwards, under the acromion process* of the scapula, is an excessively rare injury. Mr. Callaway says that there is only *one* case recorded, that by M. Tournel, in the *Archives de Médecine* for Dec. 1837. There is also another example on record, and equally incontestable; it is reported by Mell (Vidal de Cassis, t. ii. 587; South's Chelius, Am. ed. vol. ii. 220). In the first case, a private chasseur fell with his horse; the horse on rising trod upon the anterior part of the man's shoulder. "The clavicle remained attached to the sternum; but the superior and inferior acromio-clavicular, the coraco-clavicular ligaments being torn through, its external extremity quitted the two articulatory facettes, and glided under the acromion. The injured part presented two projections; a *superior* one, formed by the acromion; the other, *inferior*, by the external extremity of the clavicle; the apex of the same shoulder appeared approximated to the trunk; moreover, there was no projection to be felt above the acromion process, thus doing away with the idea of its being a dislocation of the acromion process"—p. 83. Mr. Callaway does not direct how the restoration of the extremity of the bone is to be effected, but the proper method will, doubtless, occur to the reader.

There is a third form of luxation of this extremity of the clavicle, which Mr. Callaway does not mention; indeed, we have not seen it noticed by any English or American surgeon. It is the luxation *under the coracoid process.* Vidal de Cassis (t. ii. 590–4) cites *six cases* of this accident; we believe that in no instance was an autopsy made, but as the signs of this dislocation were somewhat different from those attending the other varieties, and as there seems

to us to be nothing in the anatomy of the parts to render such a displacement impossible, we are disposed to admit its existence. The evidences of its occurrence in the instances recorded were, according to Vidal, diminished prominence of the shoulder, which is at the same time thrown forwards; the arm hanging by the side, without being lengthened, and susceptible of being easily moved, without increase of pain, in every direction, excepting inwards and upwards; ecchymosis of the acromio-coracoid region, and sinking of the clavicle, particularly of its external portion, of which the extremity may be felt, it is said, in the axilla. The distance of the acromion from the sternum is not mentioned in these cases, but, according to Vidal and Morel, it is *increased*, and thus constitutes a diagnostic sign of this peculiar displacement, because in all the other injuries involving the clavicle, the distance between these two points either remains the same or is diminished.

The mechanism of this dislocation may be thus explained: A violent fall upon the anterior and outer face of the shoulder, or a severe blow acting upon this point from below, throws the scapula upwards and backwards, so that the coracoid process is forced to a higher level than the outer extremity of the clavicle, its external ligaments being ruptured, while its horizontal line of direction is preserved by its connection with the sternum and first rib, and with the subclavius and pectoralis major muscles; so soon as the action of the dislocating cause has ceased, the scapula will be thrown forwards, partly by the weight of the arm, and partly by the action of the muscles which draw upon the shoulder from the anterior part of the chest.

In the after-treatment of the several dislocations of the clavicle, Mr. Callaway advises the employment of his modification of Desault's apparatus for the treatment of fractures of this bone. We would substitute that of Dr. Fox, because we think that it will preserve the parts in much more perfect apposition; its action should be assisted by a compress and roller, or by the application of the truss, as recommended by Melur, if the sternal end be displaced. (Vid. *Archives de Médecine*, t. xix. p. 531.)

We come now to the consideration of *fractures of the scapula*—comparatively unfrequent because of the protection which this bone derives from its surrounding and enveloping muscles. Mr. Lonsdale reports only eighteen *cases* of this accident out of 1901 fractures which were treated in the Middlesex Hospital, during six years. Mr. Callaway classes them after the usual manner: those of the body of the scapula as supra and infra-spinal fractures; those of its angles as of the anterior angle or neck of the bone, and of the inferior angle; and lastly of the processes.

We are pleased with the contents of this chapter. Besides the author's concise and judicious observations on the manner of occurrence, and the indications of these accidents, he reports some exceedingly interesting cases: one of fracture of *the body* of the scapula, the result of muscular action, in a robust, athletic man; another of fracture of the *cervix scapulæ*, accompanied by a drawing illustrating the appearances of the bone; and the third of "*displacement* of the *lowest angle* of the *scapula*." The last is quoted from Mr. Liston's *Elements of Surgery*. It is an instance of a very rare accident in which the inferior angle of the scapula has escaped from beneath the overlapping edge of the latissimus dorsi muscle, in consequence of the arm having been raised too high. "The angle of the bone projects considerably, and the muscle is felt playing beneath it: the movements of the limb are limited and painful." The reduction is accomplished by raising the arm, and pressing the angle of the scapula inwards. Mr. Callaway makes the following ingenious suggestion concerning its cause: "I think it is a question worthy of consi-

deration, whether the accident depends at all upon the muscle having an origin from the angle of the bone; at any rate, I think this circumstance is a predisposing cause, and would be very likely to favour the accident, inasmuch as these fibres, taking their *point d'appui*, under peculiar circumstances, from the insertion of the muscle, would act upon the angle of the bone and draw it upwards and over that portion of the muscle arising from the dorsal spines. It would occur, I conceive, in weak, delicate persons. Were I to have a case of which I could not effect the reduction, I should not hesitate to divide by the subcutaneous section the obstructing fibres of the muscle," &c.—p 98.

Mr. Callaway makes no mention of compound fracture of this bone, nor of the sub-osteal inflammations and collections of pus which sometimes occur after fractures of the body of the scapula, the result of violent contusion, and which are so painful and so troublesome.

A very large portion of the volume is justly devoted to the elucidation of the *dislocations of the shoulder-joint.*

The great size of the head of the humerus, as compared with that of the glenoid cavity, the looseness of the capsule, and the extent and variety of motion enjoyed by the arm at the shoulder, all conspire to render the luxation of the humerus a relatively frequent accident, notwithstanding the numerous safeguards which have been instituted against its occurrence. Thus out of 575 dislocations cited by Mr. Callaway, from statements made by Malgaigne and Dr. Norris, 370 were of the humerus; and Bichât published that, during seven years, a greater number of cases of this dislocation was received at the Hôtel Dieu, than of all other dislocations collectively.

From the tables of statistics, quoted by Mr. Callaway, published by Malgaigne in his *Etudes Statistiques*, which must have cost the author a vast amount of labour and diligent inquiry, we may deduce the following inferences: 1st, that dislocation of the scapulo-humeral articulation most commonly occurs between the age of 15 and 48 years, the proportion relatively to the aggregate of luxations being as 113 to 216. This great frequency is not surprising, consideration being had to the greater exposure to the producing causes of luxation incident to this the most active period of life, and to the fact, as before established, of the comparatively common occurrence of this particular displacement. But we find also, as a 2d deduction from these tables, that as life declines the proportionate frequency of this increases; thus, between 45 and 55 years, out of 101 dislocations, 73 were of the shoulder; between 55 and 70, of 129 dislocations, 101 were of the shoulder; and beyond 70, of 35 luxations, 30 were at this articulation. It is presumable that the increasing susceptibility to this form of displacement is due to the lessening power of the muscles which pass from the head of the humerus to the scapula, and which are certainly the efficacious agents of the retention of the humerus in its normal relations with the scapula. As might have been anticipated from the difference in the occupations and habits of the sexes, the male is infinitely more liable to dislocation of the shoulder than the female, the proportion in these cases being as 223 of the former to 87 of the latter. The number varies also in the different seasons; thus of 320 cases, 80 occurred in the spring, 67 in the autumn, 69 in the summer, and 104 in the winter.

Mr. Callaway alludes to the vagueness and confusion which exist with reference to the *nomenclature* of the varieties of this accident; and in order to simplify and clarify this part of the subject, he speaks of dislocations of the head of the humerus, as being either *anterior or posterior* relatively to a line passing from the acromion process downwards, through the centre of the glenoid cavity, and continued along the scapular head of the triceps muscle; these

chief divisions are made to comprise all the varieties, as follows: the *anterior* includes the axillary, the sub-scapular, and the subclavicular; the *posterior*, the subspinous. The comparative weakness of the lower side of the capsular ligament, and the direction impressed upon the head of the humerus by the most fruitful cause of its dislocation, falls upon the outstretched arm, account, as Mr. Callaway mentions, for the more frequent displacement below the glenoid cavity; while the natural inclination of the shoulder forwards disposes the head of the bone, when thrown from its socket, to fall anteriorly rather than behind the central line of the axilla. Of course, however, a direction will be assumed in accordance with the line of action of the dislocating force, thus determining the particular situation which the bone will occupy. We think that Mr. Callaway has acted wisely in admitting only the limited number of special displacements, instead of the long array of conceivable luxations of some of the French surgeons, and of which he presents a tabular arrangement quoted from different authors.

The points of chief interest in the author's remarks upon these dislocations have reference to the diagnosis of those cases in which the head of the humerus has fallen below the glenoid cavity. It has been very generally taught that in these the arm is always lengthened, the measurement being made from the acromion process to the condyles of the humerus. Mr. Callaway shows the incorrectness of this assertion, and explains its fallacy by the aid of a diagram. The head of the arm-bone either rests "against the anterior costa of the scapula, and towards the ribs, that is, in the axilla, or it may have been driven among the fibres of the subscapular muscle, lying almost in the subscapular fossa, while the neck is embraced by some of the fibres of the muscle. The former is that species of dislocation in which there is lenthgening of the arm, and which is so easily reduced; while in the latter, the lengthening is less marked, often absent, and the difficulty of reduction greater"—p. 108. And the truth of these statements may be appreciated by supposing a perpendicular line dropped from the point of the acromion; if the head of the bone fall without this line, of course the distance of the condyles from the acromion will be increased; if within, the distance will be diminished. The first category will apply to all the dislocations *into the axilla* of Mr. Callaway's division; because even if the head of the humerus should fall *within* this line, owing to the obliquity of the direction of the inferior costa of the scapula, it will still be so much farther removed from the acromion process as to verify the assertion; the second proposition will apply to the *subscapular* dislocations of Mr. Callaway. The mere determination of the length of the arm will not, therefore, characterize this accident, since it may be shortened in a dislocation as well as in a fracture. But the author lays down another means of diagnosis which promises to be more certain. He says, p. 109, "if the vertical circumference of the affected shoulder, *i. e.*, from its top to the anterior fold of the axilla, be measured and compared with the sound one (usually about 18½ inches), a great increase of about two inches will be found; *this is an invariable concomitant*, for the head of the bone, go where it will, must distend and displace parts, augmenting the depth of the shoulder and the breadth of the base of the axilla."

Mr. Callaway alludes to the observations of Dupuytren, Guérin and Dr. R. W. Smith, on congenital dislocations of the shoulder. We shall not further notice this point, having so recently presented to the readers of the Journal an abstract of the contents of Dr. Smith's volume.

The author passes in review the various modes of reducing the luxation of the head of the humerus from its false position below the glenoid cavity; but we need not review them here. Several cases of the accident are also adduced.

His remarks on the *sub-clavicular* and the *sub-spinous* dislocations are brief, but sensible.

With respect to the attempt to reduce a long-standing dislocation of the head of the humerus, Mr. Callaway briefly glances at the conflicting opinions and experiences upon this subject, and then expresses himself in the following judicious manner: "The circumstances which would deter me from any attempts at reduction would be, first, *the lapse of ninety days;* the patient having a tolerable use of his arm; the formation of bony deposit about the head of the bone assisting in the formation of a new joint; the history of previous inflammation concomitant with the injury, which would make all the parts adherent, and, perhaps, the muscular fibre soft; a rigid condition of his arteries; and, lastly, obscurity or obliteration of the glenoid cavity."

We are much surprised at the meagreness of this portion of the chapter, considering the importance of the question at issue, and the abundance of materials to illustrate and substantiate the true doctrine concerning it. The condition of the head of the bone and of the surrounding soft parts, in an old dislocation, should have been described and illustrated by cases, with or without drawings; the obstacles to its reduction should have been stated, together with the advantages and disadvantages of the proceeding; the dangers attending the attempts at restoration, with the fruits of experience in unsuccessful and fatal as well as in fortunate instances; and the degree of motion and of usefulness of the member in successful cases—all these facts should have been dwelt upon, and the chapter would have been a very valuable portion of the volume.

The author concludes this chapter with a notice of the complications of dislocation of the shoulder, and with the details of an interesting case of this accident, which was attended by "total loss of the motor and sensatory influence of the median and ulnar nerves;" the luxation was reduced after the lapse of seven weeks, and by the diligent use of proper remedies the patient ultimately, after many months, recovered perfectly.

"Injuries to the longer head of the biceps" furnish the author with a subject for the succeeding chapter. He thinks that the accident, which is usually considered to be a partial dislocation of the shoulder forwards, is really either a *dislocation or a rupture of the long tendon of the biceps muscle.*

He first reviews the history of the origin and progress of our knowledge upon this interesting point, which has attracted the attention of some eminent surgeons, and then sums up the diagnostic appearances of each of these conditions of the tendon.

Rupture of the tendon usually takes place, it seems, in the decline of life, when the nutrition and consequently the tenacity of the tissues have begun to fail. The point at which it commonly occurs is about midway between the glenoid cavity and the anatomical neck of the humerus. If the separation take place within the groove, there is generally considerable effusion into the joint, and a marked retraction of the lower portion of the tendon towards the belly of the muscle, while the muscle itself swells in consequence, as is well illustrated in the drawing appended to the text, p. 148. But when the rupture has occurred nearer to the glenoid cavity, the retraction is rendered inconsiderable by the connections existing between the tendon and the cellular tissue of the capsule and the groove. In either case, the capsule of the joint is but slightly, if at all, ruptured. In the cases of *dislocation*, the tendon was thrown inwards and to the lower part of the joint in three, upon the greater and lesser tuberosities respectively in the other two. There is more pain and inflammation of the joint, and greater loss of muscular power in this than in the other accident, because the displaced tendon plays the part of a foreign

body, as of a loose cartilage, in the cavity, and, of course, the usual changes produced upon serous surfaces by continued irritation are present. In both conditions of the tendon, there is lateral and posterior flattening of the shoulder, and prominence of the head of the bone anteriorly, thus inducing the belief in the existence of a partial dislocation forwards. As we have hitherto found fault with Mr. Callaway for not having described the post-mortem appearances of the accidents of which he treats, we will do him the justice to quote his remarks upon the changes found after death, in those cases in which the tendon had been ruptured. He says, p. 150, "The tendon is found usually in one of three conditions: firstly, lying loose in the joint, and presenting a fringed cellular edge; secondly, closely adherent to the capsule of the joint; or, thirdly, inseparably attached to the neck of the humerus and its bicipital groove. In both these latter cases the capsule of the joint is much thickened, as though it had become strengthened by the fibres of the tendon. The morbid changes which take place in and about the articulation, as a consequence of the injury, appear to be two: first, a coalescing of the capsule and synovial cavity of the joint with the bursa between the capsule and the acromion, or, to speak more correctly, the formation of a false joint between the head of the humerus and the under surface of the acromion; secondly, in soft, oily, and caseous bones, in which there is deficiency of phosphatic deposit, a change takes place in the head of the bone, the anatomical neck slides slightly downwards (chiefly in old people), and assumes a rather more lateral aspect than is normal, while the inner shell of the bone passes upwards and inwards, and penetrates the cancelli. This, I think there can be no doubt, is the result of the upward pressure against the acromion process. In Sir A. Cooper's case, the tendon is said to have united. With every possible submission to so high authority, I think he must have meant that it had united with the capsule of the joint. The deltoid muscle is not so much affected by the change in the joint as would be expected: occasionally it is slightly atrophied, but the muscle soon again recovers its size and tone. Should there appear to be much wasting of it, the surgeon would then have to decide upon the probability of its dependence upon some injury to the posterior circumflex nerve: in this case, sensation over the posterior fold of the axilla, and over the insertion of the deltoid, would be much impaired."

The treatment in these cases consists in preserving the shoulder at rest, in combatting inflammation, and, after a proper time, instituting passive motion. The best position for the shoulder is that which it assumes in Velpeau's method of treating fractures of the clavicle, the hand being placed upon the sound shoulder and fixed there. Mr. Callaway adduces several instances of the accident.

The last subject to which the author directs his attention is that of *fractures* of the *head* of the *humerus*. These he divides into fracture of the surgical and of the anatomical necks, and of either or both of the tuberosities. We do not find that he has added anything to our information on this subject, and shall therefore conclude our notice of his treatise.

In closing the volume, we cannot but regret that Mr. Callaway had not bestowed more care and labour upon it; for we are sure, from the degree of capability which it really evinces on the part of the author, that he might easily have rendered it of greater and more enduring value. Our readers must have observed, in the quotations which we have made from it, many inaccuracies and inelegancies of style and diction, and have inferred that it often lacks the evidence of extended and rigorous study—such as is alone admissible at the present day. F. W. S.

ART. XIX.—*Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Volume the Thirty-third.* 8vo. pp. 360. London, 1850.

THE first paper contained in the present volume of Transactions is the account of a "*Case of a Foreign Body impacted in the orifice of the Third Branch of the Right Bronchus,*" by John Gregory Forbes. The case is preceded by some interesting remarks on the propriety of attempting the removal of a foreign body so impacted.

Upon this question, much difference of opinion exists among surgeons.

"On the one hand, it is alleged that the introduction of instruments within the air-passages is a difficult and dangerous proceeding; that there is much uncertainty, from the irritation to which they give rise, whether they can be successfully employed; and that as, in some instances, the offending substance has been loosened and ejected, it is more prudent not to interfere; on the other, it is urged that if the natural powers fail in effecting so desirable a result as its early expulsion from its situation, the symptoms which follow are usually so formidable, and the life of the patient is placed in such jeopardy, that in the absence of any special circumstances forbidding an operation, its extraction should be attempted."

The truth of the grounds upon which this latter opinion is founded is admitted by Mr. Forbes. But to decide the question, he considers that more extended experience, derived from individual cases, is necessary, as the only means of determining whether the dangers resulting from the efforts made to extract the foreign body are greater than those to which the patient is exposed, if it is allowed to remain undisturbed in its position, and the powers of nature are trusted to for its expulsion.

"The symptoms," Mr. F. remarks, "induced by the impaction of a foreign body in a bronchial tube differ materially from those which arise when it moves up and down in the air-passages during the act of respiration. In the latter case, the continued laryngeal irritation gives rise to repeated attacks of convulsive cough and threatened suffocation; in the former, these are not observed, but the symptoms are then referable to the impediment offered to the ingress and egress of the air on one side of the chest, to which succeed inflammation of the bronchial membrane, and of the parenchymatous tissue of the lung, entirely, or in part, and sometimes of the pleura itself."

"The fatality which ensues from a foreign body remaining in the air-passages led Mr. Proctor to remark, 'that if not removed, it tends, sooner or later, to the one inevitable consequence—the destruction of the patient.' In looking over, however, the histories of published cases in which it was fixed in a bronchus, we find that in a small proportion it was coughed out without having produced any very serious and irremediable mischief, and a rare case is recorded by Royer Collard, in which no thoracic disease appeared to have been induced."

"In other cases on record, inflammation and suppuration took place, by which the foreign body was loosened and expelled, and even under this complication some patients recovered. But such favourable results cannot be anticipated with any confidence. In by far the larger proportion of cases of this description which have been recorded, much suffering was endured, severe pulmonary inflammation was set up, and though life was in some instances prolonged for several years, the patients at last succumbed, worn out by the continued irritation and hectic, before or shortly after they have been unburdened of the cause of their misery."

In deciding upon the question of opening the trachea and endeavouring to seize the foreign body with the forceps, many circumstances call for attention.

A substance of small size and light weight, with a smooth surface and soft texture, is less likely to cause inflammation, and there is more probability of its being coughed out than if it happens to be of an opposite nature. The age of the patient also and the previous state of his health are of importance.

In young children, the small size and delicate structure of the parts to be interfered with may prevent the possibility of the operation being effected; and in older persons, who have suffered from diseased lungs or other exhausting maladies, the prospect of a successful issue may be so slight as to forbid the operation. Neither of these objections, however, apply to the case of a healthy adult; and it may be well, therefore, Mr. F. concludes, to endeavour without delay to rid him of such a fruitful source of danger.

"In support," he remarks, "of the practicability of the operation, it is sufficient to refer to the two cases mentioned by the late Mr. Liston, in his 'Practical Surgery,' the only instances, as far as I am aware, on record, in which it was successfully accomplished." "In neither case was the proceeding attended with much difficulty, and the patients recovered."

"We have, however, high authority for stating that, in some cases, serious and insurmountable obstacles do present themselves to the completion of the operation. In the case recorded by Sir Benjamin Brodie, in the twenty-sixth volume of the Transactions of this Society, though attempts were made on two separate occasions to extract a coin from the right bronchus, through an opening in the trachea, the convulsive cough was so great on the introduction of the forceps that it could not be felt, and it became necessary to desist. The same occurred in a case lately published by Mr. Solly, and a similar one is mentioned by Mr. Porter, as having occurred in the person of a boy five years of age, in whose right bronchus a bean had been lodged. Several attempts were made to remove it, but without success. The presence of the forceps in the trachea produced the most intense distress, and the operation was abandoned. The bean was afterwards moved by a probe, and coughed out through the wound."

Another argument against the operation is the difficulty of determining the exact position of the foreign body.

"This," says Mr. F. "is undoubtedly attended with much uncertainty, and it becomes a matter of great moment to decide the question as to the nature of the evidence upon which the attempt to extract it would be justified. The auscultatory signs, though open to fallacy from the existence of previous disease in the lungs, are the chief guides. In the case now to be related, a persistent expiratory sound at first, a 'cooing rhonchus,' and degenerating into a peculiar 'whiff' or 'puff,' heard most clearly over the right bronchus, together with the pain experienced in that situation, and the consequent voluntary efforts made by the patient to expel it from thence, were the symptoms upon which the chief reliance was placed as indicative of its presence."

"Supposing then the diagnosis to be as clearly established as it can be under such circumstances, and from the alleged nature of the foreign body there is small probability of its being ejected, Mr. F. cannot help feeling that an early attempt might be made to extract it by the usual mode. Although on the first trial it may not be possible to seize or even to feel it, a second may be more successful, and if it cannot be extracted, it may be displaced sufficiently to allow of its expulsion, as occurred in Mr. Porter's case already quoted. But suppose, as has happened, every effort to remove it should fail, further experience is wanted to prove that the operation itself is attended with that amount of risk which would warrant the surgeon in depriving the patient of the prospect it affords of immediate and most probably permanent relief. It is the opinion of Sir Benjamin Brodie that under all circumstances the trachea should be opened; and Dr. Mason Warren, of Boston, states 'that if a case of the kind occurred to him, he should at once perform the operation of tracheotomy, and by a free use of ether attempt to allay the irritability of the air-passages, so as to allow a more easy exploration by instruments than is generally afforded

in the natural state.' He admits at the same time that the judgment of the surgeon must be determined by the circumstances of the particular case."

The case related by Mr. F. is that of a female 46 years of age, in whose trachea a portion of bone covered with cartilage entered whilst she was eating some soup. The operation was not considered advisable from the uncertainty as to the exact position of the foreign body, and from the symptoms not being of that urgent nature which called for immediate interference. The patient, however, continued to grow worse, and she died at the end of the twenty-sixth day after that on which the bone had entered the trachea. On the examination of the body, there was found in the right bronchus, at the distance of an inch and a half from the point of bifurcation of the trachea, and five inches and a half from the lower border of the thyroid body, a small piece of bone, weighing when dry 3½ grains, having a concave smooth facet, and a convex rough one, and one very sharp edge; its breadth being three-eighths, and its length a quarter of an inch. It was firmly impacted in the orifice of the third branch from the bronchus, which passed into the middle lobe. The surrounding lung presented indications of intense inflammation.

"The lower two-thirds of the right lung were of an ashy slate colour, of dense consistence, very offensive odour, and infiltrated with a purulent fluid. Small portions of it sank in water, and when washed it had much the appearance of coarse dark sponge, though no distinct cavities containing pus were visible."

In this case, for the reasons mentioned, it was judged inexpedient to attempt the extraction of the foreign body by an operation; Dr. F. admits, however, that "possibly a greater amount of experience might have modified this opinion."

"It is certain," he adds, "that had it been attempted, some difficulty would have arisen from the depth to which the piece of bone had penetrated; being at least four inches from the top of the sternum. Two bronchial branches had been passed by it, into the first of which, from its size, it is more than probable that the point of the forceps would have entered, and this might have given rise to such distress as to have baffled any further proceedings."

The unusual course of the carotid artery, bringing it, in this case, in proximity to the seat of incisions, would have exposed it to injury.

"With due caution," Mr. F. remarks, "it would not probably have been wounded by the knife, but it might have been bruised and injured by the forceps. Though such a deviation from its course could not be looked for in other patients, it nevertheless deserves attention, and fully bears out the remark of Mr. South, 'that the varieties of the vessels in the neck render a careful inspection necessary before proceeding to the operation.'"

The second paper is "*On the Section of the Tendo-Achillis in some cases of Fracture of the Bones of the Leg*," by Campbell De Morgan.

The subcutaneous division of tendons for the removal of difficulties which sometimes occur in the treatment of fractures, especially of the bones of the leg, is an operation which has, it appears, been successfully put in practice by the surgeons of Continental Europe, and two cases of fracture of both bones of the leg are detailed in the paper before us, the first by Mr. Shaw, and the second by Mr. De Morgan, in which the division of the tendo-achillis was attended with complete success in suspending the violent spasmodic action of the muscles, by which the permanent reduction of the fractures was prevented and great suffering caused to the patients.

"There can be no question," remarks Mr. De Morgan, "as to the twofold benefit derived, in these cases, from this simple operation, which, while it rarely

fails in effecting the object for which it is performed, is not often attended with injurious consequences. The first and most important benefit was the immediate cessation of all opposition to the replacement of the fractured bones, and to their retention in their proper positions. After the division of the tendon, the simple and ordinary apparatus was sufficient for this purpose; whereas all the means adopted before had induced spasm, and increased only the evil they were intended to remedy. The relief given to the sufferings of the patients, was, however, not less immediate, and was hardly less important. The pain and the restlessness, which before had been constant, at once subsided; and the spasms which took place, not in the muscles of the calf only, but in all the muscles of the leg, and in Mr. Shaw's case, in those of the thigh also—were at once allayed. Nor did they, in either instance, return during the remainder of the treatment."

"The cases of fracture of the tibia and fibula in which the surgeon fails, by ordinary treatment, to remove or obviate the difficulties incidental to such injuries, and in which, therefore, this operation might naturally suggest itself, are not of ordinary occurrence. But it may still be a question whether the division of the tendo-achillis, or of other tendons, might not be advisable. The present state of our knowledge with regard to the results of tenotomy in general, is, perhaps, not sufficiently exact to justify a recommendation of the operation in such cases. As a means of relieving spasm consequent upon local injury, the operation has been too rarely performed to allow of any conclusion on the subject. If, however, it should be found that results as satisfactory as were obtained in the cases now brought forward might be calculated upon in those of less severity, but in which the means used by the surgeon were counteracted, or prolonged pain and restlessness were present in consequence of spasmodic contraction of the muscles, this operation would prove a valuable adjuvant to the ordinary treatment."

The next paper is "*On the Identity or Non-Identity of the Specific Cause of Typhoid, Typhus, and Relapsing Fevers,*" by William Jenner, M. D.

The facts set forth by Dr. Jenner are intended to prove not only that the three diseases just mentioned are distinct affections, in their symptoms, course and lesions, but are each produced by a distinct specific cause.

After presenting the diagnostic symptoms of the three fevers to which the paper refers, a series of tables are presented, showing the number of cases admitted into the London Hospital, during each month of the years 1847, 1848, and 1849, with *all* the cases in which two or more persons suffering from typhus, typhoid, and relapsing fever, were admitted from the same house; the age, sex, degree of intimacy of the individuals, and the nature of the fever under which they laboured; with a view of showing that each of those diseases was derived from its own distinct focus of infection.

With the disease denominated *relapsing fever* by Dr. Jenner, we confess that we are not familiar, and lest our readers may be so likewise, we present his account of its diagnostic symptoms. These are

"Sudden rigours, headache, skin hot and dry, tongue white, urine high-coloured, bowels regular, occasional or frequent vomiting, loss of appetite, absence of abnormal physical abdominal signs. In severe cases, jaundice, profuse sweating on about the seventh day, followed by apparent restoration to health; on from the fifth to the eighth day, reckoning from the apparent convalescence, repetition of the original symptoms, with greater or less severity; again terminating in sweating, and then permanent convalescence."

After a short recapitulation of the facts exhibited by the tables, Dr. Jenner remarks:—

"The foregoing tables demonstrate that in every month of 1848 and 1849, several cases of typhoid fever and typhus fever were admitted; that the epidemic constitution favourable to the spread of typhus fever had little influence in diminishing or increasing the absolute number of cases of typhoid fever; thus,

during the first eight months of 1848, sixty cases of typhoid fever, and two hundred and ninety-two cases of typhus fever were admitted into the hospital; and during the corresponding months of 1849, seventy cases of typhoid fever, and one hundred and twenty-one only of typhus fever; so that, while the cases of the latter disease had diminished nearly three-fifths, the cases of the former had increased only one-sixth.

"As some writers have asserted that there are certain transition cases to be observed, marking the passage of one epidemic constitution into another, I ought here to remark that, with reference to the characteristic peculiarities of typhoid fever, and the rose spots in particular, they were as well marked in the autumn of 1846 as during the epidemic of relapsing fever in 1847, or of typhus in the autumns of 1847 and 1848, or as they are at the present moment. The spots have undergone no change: have experienced no modification; although the epidemic constitution, on which the difference in the rash is said to depend, must have varied more than once. The same is true of the mulberry rash of typhus fever. It presented, in the few cases observed in 1846, the same characters as during the epidemic of 1847–48; the same characters during that epidemic as at the present moment, when the number of the cases of typhoid fever bear to that of typhus fever the proportion of three to one.

"So with regard to the intestinal lesion. In all the fatal cases examined in the three years referred to in which the mulberry rash existed during life, Peyer's patches and the mesenteric glands were absolutely free from disease; and in every fatal case in which rose spots were noted during life, serious lesion of the agminated and mesenteric glands was discovered after death. The lesion, like the eruption, was quite unmodified by that epidemic constitution which favoured the spread of typhus fever in 1847 and 1848; for example, though the constitution of the autumn of this year (1849) favoured the spread of typhoid fever, yet, when a man and his wife were admitted in August with typhus fever, the mulberry rash preserved its characteristics unmodified, and when they died, as both did, Peyer's patches and the mesenteric glands were found to possess their normal anatomical characters.

"There are a few cases included in the preceding tables, which may here be more fully adverted to with advantage. In November and December, 1848, forty-eight cases of typhus fever, and twenty of typhoid fever, were admitted into the hospital, *i. e.*, nearly one-third of the patients were affected with typhoid fever. At the latter end of October, 1848, a boy, fourteen years of age, went to reside with a family named Mitchell, in Adden Place, St. Pancras. The Mitchell's were at that time in health. The boy left his own home because his brothers were down with the fever. The lad was, early in November, admitted into the hospital, suffering from typhus fever. Early, also, in the same month, the man Mitchell, aged twenty-nine years, with whom the boy lodged, the man's daughter, aged seven years, and a female lodger, aged twenty-two, were also admitted with typhus fever. The other members of Mitchell's family, expelled from Adden Place, then removed to 21 Hertford Street, at least a mile from their former residence. At this time, so far as I could learn by personal inquiry, there was no fever in Hertford Street, and *certainly* none in the house in which they had taken up their residence. On November 22d, the two sisters of Mitchell's wife, aged respectively fourteen and twenty-two, who had removed from Adden Place with Mrs. Mitchell and her infant, aged four years, were received into the hospital, both suffering from typhus fever. On December 8th, the landlady of 21 Hertford Street, aged 60, was admitted with very severe typhus fever, and on December 20th the son-in-law of the landlady was also admitted with the same disease. I subsequently saw Mitchell's infant, aged four years, at its own home; it was similarly but very slightly affected. The only member of the family that escaped was the woman Mitchell, and she had had 'spotted typhus fever,' according to her own voluntary statement, some few years before. Here was a group of persons, whose ages varied from four to sixty years, and whose constitutional predispositions also must have varied infinitely, for there were several of them unconnected by blood, exposed to the poison of typhus fever (introduced among them by the lad aged fourteen), at the same time when typhus fever was only twice as prevalent as typhoid

fever, what was the result? Did one-third of the eight have typhoid fever? No, not one.

"In December, 1848, ten cases of typhus fever, and seven of typhoid fever were admitted into the hospital. Five cases came from one house; these five individuals varied in age from seven to fifty-two years; their degree of relationship was grandfather, daughter, and three grandchildren. All five had well-marked mulberry rash, were unequivocally affected with typhus fever. It is evident that, as at this time the number of those admitted with the two diseases was pretty nearly equal, two of these five ought, if the cause of the two diseases is identical, to have had typhoid fever, with rose spots.

"In March and April, 1849, eight cases of typhoid fever, and thirty-one cases of typhus fever, were admitted into the hospital. Between the 19th of March and the 10th of April, eight persons were brought to the hospital from one room, suffering from fever. Did one-fourth present the rose spots of typhoid fever? No, not one—all had well-marked typhus fever. In September, October, and November, 1849, eighteen cases of typhus fever, and forty-eight cases of typhoid fever, were received into the hospital, *i. e.*, nearly three times as many cases of typhoid fever as of typhus fever. During the same three months, a mother and her two daughters, aged respectively fifty-four, sixteen, and thirteen; a husband and wife, aged forty and forty-seven; a husband, wife, child, and lodger, aged severally forty, thirty-nine, twelve, and forty—*i. e.*, in all nine persons, were brought from three localities. At least five ought to have had typhoid fever, if that affection and typhus fever are due to the same specific cause. Was it so? No, in every case, the persons secondarily affected, whatever their age or sex, had the same disease as the individual from whom they caught it.

"In April, 1849, a girl suffering from relapsing fever was brought from a house in Fulham—in a few days her brother and two sisters were admitted into the hospital. Did either of the three latter have typhus fever, which was the prevailing disease, or typhoid fever, which was then also very much more widely spread than relapsing fever? No: all had the same fever."

"Before concluding, it will be well, summarily, to repeat that in 1848 one-fourth of the cases admitted into the hospital had typhoid fever; while from thirty-four foci of typhus fever, yielding one hundred and one cases, there was brought to the hospital once only a case of typhus fever and a case of typhoid fever from the same house; and during the same time, among five localities, affording nine cases of typhoid fever, one locality only yielded a case of typhoid and one of typhus fever. That in 1849, although eighteen foci of typhus yielded fifty-one cases, and four foci of typhoid fever afforded ten cases, not a single example of the two diseases being received into the hospital from one house occurred. With reference to the exceptional case, I must observe that for exceptional cases to be of any value in proving the identity of typhus fever and typhoid fever, they must be met with more frequently than similar exceptional cases are met with in diseases having a specific cause universally acknowledged to be different.

"Now, the following facts prove that, with respect to measles, scarlet fever, and typhus fever, such exceptional cases are as frequent as with respect to typhoid and typhus fevers. During the last three years, I have seen a case of typhus fever brought into the hospital from a house in which all the children were suffering from measles; another case of typhus fever brought from a house in which the children had scarlet fever; a girl admitted with scarlet fever, who had been on terms of intimacy with another girl admitted shortly before with typhoid fever, and in these cases no direct contagion for the diseases under which the patients laboured could be traced. It is also important to observe that the cases of scarlet fever admitted during the time specified were nothing like so numerous as the cases of typhus fever or of typhoid fever.

"The facts contained in this paper appear to me to prove, incontestably, so far as induction can prove the point, that the specific causes of typhus and typhoid fevers are absolutely different from each other, and to render in the highest degree probable that the specific cause of relapsing fever is different

from that of either of the former two. I have elsewhere attempted to prove that the course, the symptoms, the lesions, and the sequelæ of typhoid are typhus, are different, and as relapsing fever differs from both too widely, so far as symptoms and course are concerned, to be confounded with them, it follows that if small-pox be separated from measles, and both from scarlet fever, because their course, symptoms, lesions, and specific cause are different, so must, for like reasons, typhoid fever, typhus fever, and relapsing fever, be separated from each other, and regarded as absolutely distinct diseases, not merely varieties of each other, as are scarlatina anginosa and scarlatina sine eruptione, but distinct species of disease, as are scarlatina, rubeola, and variola."

Next in order are the histories of two cases of "*Complete intestinal obstruction, arising from disease of the sigmoid flexure of the colon and the rectum, in which the descending colon was successfully opened in the loin;*" the one related by Frederick Field, and the other by Josiah Clarkson.

The first case occurred in a stout male, thirty-three years of age. He had been affected for many months with derangement of the bowels—marked by occasional pains, tenesmus, and constipation—scanty stools, voided with difficulty—flatulence—distension of belly—with weight and uneasiness at the stomach after eating. These symptoms, after a time, increased in violence. They were, at first, temporarily relieved by purgatives. Vomiting after meals became added to his other symptoms. The patient was able to continue his employment, that of coach-axle forger, until within four days of the visit of Mr. Field, when the action of the bowels entirely ceased; all his symptoms became greatly aggravated, and he took repeated doses of brandy and castor oil, with the only effect of adding to his sufferings and producing vomiting. When seen by Mr. F., the abdomen was greatly distended and tympanitic, pain in the region of the transverse colon, increased by pressure; the pain was of a twisting character and shot down to the umbilicus; region of transverse colon somewhat bulging. The pain was aggravated in violent paroxysms, accompanied with strong tenesmus, continuing for about a minute. He vomited almost everything he took. Pulse somewhat increased in frequency, full, strong, and compressible; tongue coated with a thick pale fur, and not dry—much thirst.

The leading symptoms were but partially abated under the use of the various remedies that were from time to time employed. In attempting to relieve the bowels by injections thrown into the colon, the pipe could be introduced but about eight inches, its further passage being at this point prevented by an obstruction. At the end of twelve days, the condition of the patient becoming much worse—with incessant vomiting of a light-brown matter with a strong fæcal odour, no evacuation per anum having occurred for sixteen days—all further efforts to prolong life by medical means were considered useless, and the operation employed by Amussat for opening the descending colon was proposed to the patient, and, with his consent, performed.

"The patient being extended on a bed with his face downwards, a transverse incision was made on the left loin, beginning at the ridge which marks the external margin of the erector spinal muscle (about two inches from the spine), and carried directly outwards. This incision was five and a half inches long, and was situated a finger's-breadth above the crest of the ileum; it passed through the skin and fat nearly one inch in depth down to the latissimus dorsi muscle. This muscle, and the quadratus lumborum were now divided to the extent of the incision of the skin, and a layer of fat, bounded on the inside by the external margin of the erector spinæ muscle, was brought into view. On dissecting this away to the depth of about half an inch, a thin transparent membrane was exposed. From the appearance of this membrane, which it

was conceived might be the intestine, it was thought advisable to pass sutures through it to retain it in its position, and subsequently to affix it to the edges of the wound. However, on penetrating it with the knife, a mass of soft granular fat started through the incision. A very large quantity of this fat was cautiously dissected away, and the finger was then introduced to search for the bowel, but no precise indication of it could be felt; the finger, when pressed upwards, rested on the lower part of the left kidney, while downwards it came in contact with the inner margin of the crest of the ileum. The wound being now of considerable depth, it was necessary to proceed with great caution, and clear away the fat little by little, which proceeding, from the looseness of the nature of the fat, was rather difficult, and occupied some time. At length, the bowel was brought into view, at the depth of about four inches; it was highly vascular, and having been cleared of fat, sutures were passed through it and held by assistants. An incision half an inch in length was made into the bowel, and an immense quantity of light-coloured fluid fæces immediately escaped. The patient had been vomiting similar fæcal matter during nearly the whole of the operation, but this vomiting now entirely ceased, and he was relieved of all his symptoms. The opening in the bowel was fastened by sutures to the skin; a large bread poultice was placed over the wound, and retained by a bandage passed round the body, the patient being enjoined to lie on the left side to facilitate the escape of the fæces. Scarcely two ounces of blood were lost during the operation."

The operation was performed on the 15th of May. From that time, the patient gradually amended—the wound gave little or no trouble; through it the fæces were regularly passed until the 22d, when fæces, preceded by flatus, were passed per anum. Subsequently, however, they were only passed from the artificial opening. Three or four stools in the twenty-four hours thus occurred—he had a short notice of them by a slightly painful sensation immediately preceding the evacuation. The fæces passed through the wound with great facility; the opening into the bowel was closed, in the interval of the evacuation, by the apposition of the sides of the wound in the integuments, so as temporarily to shut up the artificial opening.

From the 3d of June, Mr. F. remarks,

"The patient rapidly recovered his strength, nutrition proceeded perfectly, and he acquired his usual bulky form; the wound contracted to an aperture in the centre of the incision no larger than would admit an ordinary goose-quill, through which the fæces passed with facility. He was now able to resume his laborious employment of coach-axle forger, in which great and rapid muscular exertion was constantly required in lifting and striking heavy weights of iron; and in which also he was obliged to keep time with two other 'strikers' who worked under him at the same forge.

"He thus continued from midsummer, 1845, to Christmas, 1846, during which period I have heard him remark," says Mr. F., "that he had required as great weight and could do as much work as at any time in his life. There was nothing in his appearance and manner that would convey the most remote idea of his being the subject of so remarkable a deviation from nature as an artificial anus. Had his occupation been a light one, and his habits temperate and regular, he might have passed through life with little inconvenience from the artificial anus. The only interruption to perfect health which he suffered occasionally arose from temporary constipation, caused, it is probable, by tendency to contraction in the aperture, and probably also by the fæces becoming somewhat more consistent than usual."

The constitution was quickly remedied by passing a small-sized bone clyster pipe into the artificial opening, and injecting through this about a pint or more of warm water—by this means, the passage was dilated to the required diameter, and the fæces also were softened so as to admit of their easy evacuation. After a period, however, the tendency to contraction of the artificial

passage diminished, and the constipation was then relieved by a small dose of castor oil.

In the latter part of 1847, the patient applied to Mr. F. in consequence of severe pain in the right hypochondrium—pain and uneasiness in the same situation he had frequently experienced for some months—leeches and a blister were applied, and the same treatment was subsequently directed by Dr. Fletcher and Mr. Carter for a renewed attack of the same pain.

"The pain, however, still continued, and in time extended in a sub-acute form over the abdomen generally. His appetite now began to fail; he had frequent vomiting; the urine became scanty, and ascites set in, and notwithstanding a steady perseverance in medical treatment, he became rapidly worse and much emaciated. The abdomen became greatly distended, and at length between three and four gallons of fluid were drawn off by tapping. The fluid, however, reaccumulated; he was troubled with constant vomiting of large quantities of depraved bile, and had frequent diarrhœa; his system became greatly exhausted, and he died on the 25th of February, 1848; being three months from the commencement of his last illness, and *a year and nine months* from the time of the operation."

"*Examination forty-eight hours after death.* Body greatly emaciated; lungs healthy; very slight old adhesions of the pleura on the left side; heart and large vessels healthy. The parietal peritoneum opaque, thickened, and generally covered with lymph; the convolutions of the intestines adherent together, and covered with lymph; spleen healthy; kidneys slightly congested; the liver much thickened and granular in texture; anterior margin of liver greatly rounded, and adherent to the peritoneum by the whole of its upper surface. The strictured portion of the intestine was situated at the sigmoid flexure; it was about four inches in length, and three-quarters of an inch in diameter, throughout the whole extent of the contracted part. When cut into, the whole of this portion was found to be filled with a plug of apparently firmly coagulated lymph, which entirely obliterated the canal.

"Having placed the diseased portion of intestine along with other morbid specimens in a jar of spirits of wine, for further examination, I found after it had remained some time that the plug had become broken up and detached from the bowel. On scraping the thick layer which remained from the bowel, the coats of the latter appeared contracted and slightly thickened, but were continuous; even the contracted portion of the intestine seemed to be formed of successive layers of lymph or fibrine, or inspissated cancers. It exactly resembled the deposits which take place in the larynx in acute laryngitis."

The second case of intestinal obstruction occurred in a robust, healthy-looking female twenty-one years of age. Her symptoms were first, pain at the epigastrium, flatulence, nausea, and obstinate costiveness; to these were soon added headache, thirst, and general febrile disturbance; then pain about the umbilicus and left hypochondrium, increased upon pressure; slight and even distension of the abdomen; tympanitis; constant nausea, but no vomiting; a pulse of one hundred and ten, full and strong; flushed and somewhat anxious countenance; dry and hot skin; copious flow of high-coloured urine. The bowels were attempted to be relieved by active cathartics and injections. The colon-pipe passed up easily a distance of about six inches, but could not be advanced beyond this point by any manipulation. The general symptoms speedily became aggravated, and began to put on a serious aspect. The pain and distension of the abdomen became such as to cause Mr. C. to fear that peritonitis had commenced.

By leeches, the symptoms were somewhat moderated, but no evacuation could be procured from the abdomen. On the seventh day after that on which she had first came under the care of Mr. C., stercoraceous vomiting having taken place, and all the symptoms of her case having assumed a most

threatening aspect, the operation of Amussat was performed pretty much in the same place and manner as in the preceding case. Upon the division of the fibres of the quadratus lumborum muscle and the aponeurosis of the transversalis muscle beneath it—after the removal of a quantity of loose fat, the intestinalis was reached with very little difficulty, apparently not much distended.

"Four ligatures were passed through the intestine, two of which were fastened to the upper lip of the wound, and two to the lower. The intestine was then divided longitudinally between them, giving exit to a large quantity of fluid fæces; very little blood was lost. The operation lasted twenty minutes, and almost immediately after its completion, the patient expressed herself as being greatly relieved. She was placed in bed on her left side, without anything being applied to the wound."

In two hours afterwards, it was found that the fæcal discharge had been very profuse, and was still continuing. The dirt being removed, a large soft poultice was applied to the wound, and the patient was replaced in bed in the same position as before. The operation had much relieved her, and her condition was in every respect satisfactory.

Without any untoward symptom, the patient steadily improved in her general health, and the wound gradually cicatrized and contracted, the opening in the bowel being of sufficient size to admit the index finger without difficulty, and giving exit to three or four healthy stools daily. On the eighteenth day from the operation, she voided three or four rounded lumps per anum, which at first were supposed to be scybalæ, but upon a careful examination were found to be merely indurated mucus.

In three weeks the patient was able, with a little assistance, to walk down stairs, and soon to take a part in household work. Her appetite became good, digestion was carried on with energy—she quickly regained her usual habit, and even presented some degree of *embonpoint*. Her menstrual periods were regular.

"For several succeeding months she was in a most satisfactory condition, capable of performing the duties and enjoying the pleasures of her situation in life. She was able to walk about the town, and no one meeting her would have supposed for an instant she had been the subject of an operation of this nature. She wore a pad over the orifice supported by a bandage round the belly, and as she had an evacuation only when these were removed, the inconvenience resulting from the situation of the anus was much less than she had expected or Mr. C. had ventured to hope.

"Whenever, as sometimes happened, the fæces were retained for a day or two, or she suffered an aggravation of the pain, which still occasionally troubled her, a dose of aperient medicine or the warm water injection would afford her almost immediate relief. The only difficulty experienced was the tendency to contraction which the opening into the bowel at this time began to exhibit, and which required now and then the use of bougies and other dilating agents.

"At the expiration of ten months, this contraction was becoming the source of very considerable annoyance, as it opposed a serious obstacle to the escape of the contents of the bowels. The evacuations gradually became less frequent, three, four or five days intervening without one, and even then they were only procured by dilating the orifice and administering injections. The pains became more constant and severe, the appetite began to fail, general disturbance of the digestive process followed, producing emaciation and debility."

By the use of sponge tents and other appliances, a great increase in the size of the outlet was obtained; but unfortunately there was no corresponding increase in the quantity of matter evacuated. Notwithstanding every measure that was put in requisition, the bowels refused to discharge their contents, the

emaciation rapidly increased, and the patient eventually died on the evening of the 14th of September, 1847, *having survived the operation nearly fourteen months.*

"*Examination of the body twenty-four hours after death.*—On cutting into the abdomen, about a pint of clear, straw-coloured serum escaped. The parietal peritoneum was of a dark mottled colour, and presented innumerable tubercles, of various sizes, thickly studded over its whole surface. It was also much increased in thickness. The peritoneum covering the intestines was in a similar condition; and from the long-continued inflammatory action of which it had been the seat, the opposed surfaces of the convolution had become so firmly adherent to each other as to be separated only with the greatest difficulty. Adhesions of this character had also been contracted between the transverse colon and the liver, the spleen, and the stomach; on the right side the colon was also connected with the abdominal wall. The whole of these adhesions were remarkably fine and unyielding, almost approaching cartilage in their texture; and they thoroughly incorporated the surfaces of the abdominal viscera in one mass, not to be separated in many places with the scalpel. During life, they must have greatly interfered with the peristaltic action of the bowels. The transverse and descending colon were empty and contracted, but the whole of the small intestines, up to the duodenum, were greatly distended with consistent fæces; the ascending colon also contained some fæces, but in this part they were more fluid in their consistence. The mucous lining of these parts of the alimentary canal was of a dark colour, and presented numerous patches of ulceration. The most healthy portion was some inches above and below the artificial anus.

"A careful dissection of the parts involved in the disease and the operation revealed the following conditions: The obstruction was situated about six inches from the lower termination of the rectum, and on a level with the fundus of the uterus. It consisted of a dense cartilaginous substance, surrounding the intestine in this spot, and completely obliterating its canal. It appeared to have originated externally to or on the outer surface of the bowel, as this latter, at the point of obstruction, was pinched in, as though it had originally been tied with a ligature. This diseased structure was about the size of a pullet's egg, the greater part of it being situated anteriorly, whereby it had pushed the fundus of the uterus forward, producing slight anteversion; it was also firmly connected with this organ. On laying open the bowel, and dividing the growth in a line corresponding with it, it was found that the channel was obliterated for the distance of half an inch, and this occlusion was so complete as even now to prevent the possibility of establishiug a communication between the upper and lower portions of the intestine except by the aid of the knife."

The sixth paper contains a detail of "*Chemical Researches on the Nature and Cause of Cholera*," by Dr. Robert Dundas Thompson. From an analysis of the blood obtained during the period of the disease marked by rice-water discharges and collapse, it was ascertained that there was a considerable augmentation in its specific gravity. In the ratio of serum to clot, the aberration from health is not great—but this in some measure depends upon the increase in the weight of the serum, as indicated by its specific gravity. The watery portion of the blood is greatly diminished. The consequence fairly deducible from eight observations enumerated in one of the tables given by Dr. Thompson is that,

"In the lymphatic or collapse stage of cholera, the watery portion of the blood has diminished by at least 7 per cent.; so that if we were to consider with some physiologists the total amount of the blood in the human body to approach 22 lbs., it would appear that in the spasmodic cholera, at least 1½ lbs. of the watery part of the blood have been extracted from the fluid and poured into the intestinal canal. This, however, is taking the most favourable view of the circumstances. But, if we estimate the amount in some of these cases where the diminution of fluid in the blood is at a minimum, then the per

centage reduction will reach as high as 13."—"During the prevalence of cholera, a specimen of blood obtained by hemorrhage from the nose was put into Dr. T's. hand by his friend Dr. Pagan. The patient laboured under an affection of the mucous membranes of the air tubes." It is the only specimen of blood which he has hitherto found to assimilate to that of the lymphatic stage of cholera."

From a number of analyses and facts detailed by Dr. T., the conclusion seems legitimate that there is nothing abnormal in the amount of globules, albumen, and fibrine of the blood in cholera; and that the disease, as affecting the blood, consists chiefly in a diminution of water; from other analyses which are given, it is shown that the equilibrium of the saline constituents of the blood are also decidedly disturbed. While there is in the same quantity of blood a larger amount both of earthy and soluble salts, there is a less quantity of the soluble salts in proportion to the earthy ingredients.

"The method of restoring the balance which has been interfered with," Dr. T. remarks, "would not be by adding more soluble salts, which are already in excess by upwards of one-third, but by substracting a certain amount of the earthy substances. It is not, however, to be supposed that any such mode of treament could be attended with any benefit, for omitting the fact that besides saline matters albuminous substances also escape from the blood in this stage of the disease, it must be obvious, on even a cursory examination of cholera, that the condition of the blood is merely a symptom of the disease—an effect of some powerful atmospheric cause of which hitherto we have not been permitted to take cognizance."

The discharges from the bowels in cholera, according to Dr. T.,

"Are always characterized by the presence of what have been termed flocculi. These have generally been assumed to be coagulated albumen. But careful examination under the microscope has demonstrated these masses of organic matter to be chiefly epithelial scales, derived without doubt from the surface of the intestinal mucous membrane, as in the case of the excretions of infants at the breast. These fluids are almost always alkaline; in one instance, however, the fluid was strongly acid, after being kept for twenty-four hours, and on the removal of the cork of the bottle a quantity of carbonic acid was evolved. It is quite possible that the fermentation was due to the presence of sugar in the intestinal canal, derived from milk, which was freely administered, in mixture with eggs, to the patients in the cholera hospitals of this city."

"Usually, the fluids, as evacuated, when allowed to settle, yielded by boiling, or the addition of an acid, distinct evidence of the presence of albumen. The quantity, however, in true rice-water cases, was generally insignificant. On comparing these results with the analyses of the various fluids which make their appearance in serous and mucous cavities, as a result of diseases, it would almost seem that the intestinal mucous membrane had in this disease assumed the functions of a serous membrane, since the liquid evacuated bears a close resemblance, in composition, to the fluid deposited in local dropsies, and does not correspond, as has been generally asserted, with the serum of the blood. It deserves attention, however, that the natural fluids of the mucous membrane bear a close resemblance to those of the serous tissues, inasmuch as they consist of an alkaline fluid, with a small per centage of salts, dissolved in a large amount of water."

From analyses given by Dr. T., it is shown that the nature of the salts in the rice-water evacuations is precisely similar to that of the saline matters found in the serous fluid of hydrocele and hydrocephalus.

"The characters which have been now detailed," Mr. T. remarks, "apply to the usual rice-water dejection; but cases," he adds, "frequently occurred in which the amount of organic matter was found much more considerable, although the proportion of salts was not materially augmented."

When death occurs in the collapsed stage of cholera, the largest quantity of urine which Dr. T. has seen taken from the bladder was about a drachm; but usually the secretion may be said to be totally suppressed. On testing the minute quantities which were obtained, they seemed to contain the ordinary constituents.

As soon as the stage of reaction has terminated favourably, and the patient is so fortunate as to reach the third stage, or that of reaction, according to the researches of Dr. T., the morbid condition of the intestinal discharges commence rapidly to diminish—they become marked by the presence of bile—the blood begins to assume its normal condition—and a state of disease is replaced, before long, by one of health.

The condition of the atmosphere during the prevalence of cholera was carefully examined by Dr. T.; the presence of no organic body could be detected in it.

From the various analyses and experiments detailed in the paper before us, Dr. T. remarks that

"The following are the conclusions which seem deducible from the previous experiments:

"1st. That the incipient stage of cholera does not differ materially from the common forms of diarrhœa, inasmuch as its treament is successfully managed by similar means, and their result may lead to the inquiry—Does not the removal of the symptoms of the disease by narcotics, and, therefore, the retention of the fluids in the system, afford an argument against the idea of a morbid poison being the cause of cholera?

"2d. That in the second stage of cholera, a lymphatic fluid is diffused from the blood into the intestinal canal, corresponding exactly in chemical composition with that secreted or diffused through the serous membranes in hydrocele and hydrocephalus, and other forms of dropsy. Compared with healthy blood, it appears that the salt which has diffused most largely into the intestines is common salt, while the albumen of the blood possesses this power of transference generally in a very limited degree. The facts seem to show that this stage, instead of as in the natural state, the diffusive power of the mucous membrane being exerted from the intestines towards the blood, the reverse action occurs; thus pointing to a parallelism with purely physical phenomena. Conjoined with other characters, they supply an argument for the inquiry—May not cholera be an *Epidemic intestinal catarrh*, influenza being an *Epidemic respiratory catarrh?*

"3d. In the third stage, the lymphatic fluid ceases to be poured out from the blood. The bile is excreted, and the normal diffusion from the intestines to the blood resumes its action.

"4th. There is no evidence of the existence of any organic body in the atmosphere during the prevalence of cholera, and hence the inquiry is suggested—May not this and parallel diseases, which are not contagious, such as ague, be principally due to meteorological and physical influences, acting on debilitated habits, and thus a distinction be established between them and contagious affections produced by morbid poisons, as typified by small-pox?"

The ensuing paper is the history of a "*Case of Structure of the Œsophagus, fatal two years and three months after accidentally swallowing soap lees,*" by Wm. Basham, M. D. A female, 22 years old, drank by mistake some of a caustic solution of impure carbonate of soda. She did not swallow more than a mouthful, as she spat out the portion in her mouth on discovering her mistake. She does not appear to have suffered any pain at the time, or any other inconvenience than the soapy disagreeable sensation in the mouth and pharynx, till near two hours after the accident, when severe vomiting commenced, and continued with but trifling intervals for five days. She was then admitted into the Westminster Hospital, July 16, 1847. Her symp-

toms now were great prostration, red, moist and glazed tongue, pulse 84, small and weak, obscure tenderness or rather soreness of abdomen, arising apparently from frequent retching; no pain on pressure, except at the epigastrium; no tympanitis; skin of natural temperature; no constipation; deglutition painful, and followed by rejection of all ingesta, whether fluid or solid. Countenance expressive of exhaustion. The mucous surface of the tongue, cheeks and pharynx, although red and injected, appeared merely denuded of epithelium; there was no indication of abrasion or ulceration.

Under the use of oleaginous laxatives and demulcents, calomel and opium, a blister to the throat and upper part of sternum, and a mild and farinaceous diet, the stomach gradually recovered its quietude and natural digestive powers—food and drink were retained, and a marked improvement in the patient's appearance was observed. Pain was occasionally felt at the upper margin of the sternum and between the shoulders. Ten years after admission, she was discharged at her own request.

Eleven months from this period, June 8, 1848, she was re-admitted, suffering from very urgent dysphagia—emaciated, weak, and looking like one half starved. She stated that a few weeks after she left the hospital last year, she began to feel occasionally a difficulty in swallowing solids, which increased so much that she was obliged to live on spoonfood; that during the last four weeks, the difficulty of swallowing had rapidly increased, and that for the last eleven days every species of ingesta came back again.

The œsophagus was examined with a small gum-elastic catheter, No. 8; some trifling obstruction was felt at a point corresponding to about one inch below the cricoid cartilage; about one and a half to two inches from this spot, an impediment to the passage of the instrument presented itself, which it required steady and prolonged pressure to overcome. Beef tea was injected into the stomach, and subsequently a little port wine. The patient rapidly improved, and next day was able to swallow beef tea and arrow-root; a tube of increasing size was passed daily. The patient was still unable to swallow any solid portions of food. On the fifth day after her admission, an unsuccessful attempt to pass the tube through the lower stricture was followed by considerable pain about the pharynx and gullet, at the upper margin of the sternum and between the shoulders. These symptoms yielded to a blister and calomel and opium. In the evening the tube was passed. The power of deglutition again improved. The patient improved in flesh and strength, and was made out-patient, June 30, but neglected to attend. On July 18th, she was re-admitted, with aggravated symptoms. Pain referred to sternum and between shoulders. Blistering afforded relief. A tube of the size of a No. 8 catheter was passed daily, and she recovered the power of swallowing fluid nourishment. The state of the stricture would not, however, admit of any increase in the size of the œsophageal bougie. At the end of August, she was again made out-patient, and during the latter months of the year was employed as a nurse in the hospital. During this period, she was not able to swallow solids. She left in January. On the 10th September, 1849, she was admitted for the fourth time. Her symptoms and sufferings had assumed a more aggravated character than on any former occasion. For some weeks previously, the difficulty of swallowing had rapidly increased, and within the last few days everything she attempted to swallow was returned. The bougie met with some trifling obstruction at the upper third of the gullet, just below the cricoid cartilage, which moderate pressure succeeded in passing, but, on reaching the stricture below this it could not be passed by the smallest-sized wax bougies. A variety of remedial means was tried, but without procuring

any permanent relief of the patient's sufferings. The stricture was situated so low in the œsophagus that all hope from surgical assistance was unavailing. Incoherency and delirium supervened, and death from exhaustion and inanition put a period to the patient's sufferings on the 19th September, 1849.

"On opening the œsophagus after death, the pharyngeal or upper third of the tube was much dilated and pouch-like; the mucous surface being puckered up into folds. The coats of the tube in its entire length were much thickened, the mucous and muscular coats particularly, above the first stricture. At a spot corresponding in position to about an inch below the cricoid cartilage, was the first structure; just below this, on the left hand, was the cicatrix of an ulcer about the size of a sixpence. The tube dilated again, and then contracted to about the diameter of a No. 8 catheter for nearly three inches, when it suddenly closed, and presented the appearance of complete obliteration of the canal; and a probe could not be passed from above downwards; a passage could be obtained only by passing the probe from below upwards.

"The thickening of the walls of the gullet commenced just above the first stricture, and continued to the lower one, below which the œsophagus resumed its ordinary character.

"This case," Dr. B. remarks, "affords an example of the succession of structural changes, slowly developed, and proceeding for a time without any very urgent symptoms, which may be expected to follow accidental swallowing of the caustic and carbonated alkalies. The same order of symptoms and similar pathological conditions of the œsophagus have been observed before, and seem common to all these cases. Inflammation is first excited; an impediment to perfect and easy deglutition is accompanied by pains and distress at the inflamed portion of the gullet. This inflammation is constantly renewed and maintained. Stricture follows; difficulty of deglutition results; increased obstruction perpetuates the inflammatory condition, surrounding textures become thickened; the stricture continues to increase, and finally becomes impassable; and the miserable patient at last dies, less from the morbid process itself than by want of nourishment: or craving hunger and insatiable thirst continuing unrelieved, and these, mocked by the ineffectual efforts for their relief, consign the poor sufferer to incoherency and delirium, and death ensues."

After referring to three analogous cases, recorded by Sir Charles Bell, Mr. Cumin, and Mr. Dewar, Dr. B. remarks:—

"The practical question, in considering these cases, is whether any other mode of treatment than that adopted could be expected to avert these distressing and fatal consequences, which appear almost uniformly to follow these accidents of swallowing the caustic and carbonated alkalies. The propriety of treating these cases, in the first instance, for inflammation of the gullet, cannot, I think, be questioned; and leeching, blistering, and calomel and opium, when deglutition can be accomplished, are successful in relieving the earlier morbid conditions. But so soon as these are controlled, and before any positive symptoms of dysphagia present themselves, I should in any future case commence at once the daily use of an œsophageal bougie, and continue its daily employment for months, even in the absence of any symptoms of its necessity."

The eighth paper is "*On the Proximate Cause of Albuminous Urine and Dropsy, and on the Pathology of the Renal Blood-vessels in Bright's Diseases*," by Dr. George Johnson.

We cannot attempt to analyze this able and interesting paper. The following paragraphs will convey to our readers some idea of the view which Dr. Johnson has attempted to establish in reference to the pathology of the diseases of which he treats.

"In tracing the progress of a case of acute dropsy occurring as a consequence of scarlatina, it will commonly, but not invariably, be found that the patient has been exposed to cold. The natural process of elimination by the skin has thus been checked, and the poison is driven inwards to the kidney. It reaches

the inter-tubular capillary plexus, and an effort is made to eliminate it by that modified action of the secreting cells which we have called desquamation. The cells are formed and shed rapidly and in large numbers; so that in the course of a few hours many of the tubes may be completely filled by their accumulated solid contents. This condition of the tubes must obviously impede the secretory process; the blood is imperfectly purified, and excrementitious matters accumulate in it."

"Assuming that the renal circulation is affected by an imperfect elimination of the urinary constituents in a manner analogous to that in which the pulmonary circulation is influenced by the retention of carbonic acid in the blood, we should expect to find that the circulation would first be retarded in the inter-tubular capillary vessels, the obstruction, which will be in proportion to the extent of morbid change in the contiguous tubes and cells, will, of course, exert an influence extending backwards in the order of the circulation; so that the Malpighian capillaries and the arteries which supply them will become gorged with blood. This engorgement is exactly analogous to that of the right side of the heart and venous system observed in animals after death from asphyxia."

"That the circulation through the inter-tubular capillaries is retarded, and that the Malpighian capillaries are consequently subjected to a greatly increased pressure and distension, seems to be indicated by the escape of serum and blood which so constantly occurs during an attack of acute desquamative nephritis following scarlet fever. The serum flows into the tubes, mingles with the urine, and renders it highly albuminous; while the colouring matter and fibrine coagulate in the tubes, and afterwards escape in the form of cylindrical moulds, in which epithelial cells are commonly entangled. There seems no reason to doubt that the blood in these cases escapes from the Malpighian capillaries, which lie within the dilated extremities of the tubes. The result is precisely similar to that obtained artificially by Dr. George Robinson, who observed that when a ligature was placed upon the renal vein of a rabbit, the urine became albuminous and bloody.

"I have observed in all cases of chronic renal disease, which I have examined since my attention has been directed to the condition of the blood-vessels, that the coats of the arteries and of the Malpighian capillaries are remarkably hypertrophied, while the coats of the inter-tubular capillaries and of the emulgent vein present no appearances of hypertrophy or thickening."

"The pathological explanation of the changes in the renal blood-vessels appears to be this. There is an imperfect elimination of the urinary constituents, in consequence of changes in the secreting cells, produced by an effort which they have made to excrete abnormal products. Deficient excretion at once leads to impeded circulation—the obstruction occurring at the very point where the excretion should be effected, viz., in the inter-tubular capillaries. The impediment reacts backwards upon the Malpighian capillaries, which in a sudden acute attack become ruptured, and allow the blood to escape into the urinary tubes; but when the disease has been of longer duration, they become thickened, and permit only the serum of the blood to escape. The thickening of the Malpighian capillaries is probably preservative, and is intended to enable them to bear the increased pressure to which they are subjected during the continuance of the disease.

"The thickening of the arteries, which proceeds simultaneously with that of the Malpighian capillaries, affords support to the opinion entertained by some physiologists, that the smaller arteries exert a propulsive influence upon the blood. The remarkable hypertrophy of the muscular coats of these vessels seems to have for its object to assist in driving the blood onwards through the inter-tubular vessels in which the impediment exists. Finally, the gland cells being destroyed, and the process of secretion arrested, the circulation ceases, the tubular tissue wastes, and oil globules collect in the canals of the blood-vessels."

"The subject of renal dropsy appears now to demand a brief notice. Analogy would indicate the very great probability that this form of dropsy is produced by an impeded circulation through the systemic capillaries, consequent

upon the retention of the urinary constituents, 'the blood.' "There is one fact which, *per se*, is almost sufficient proof that the systemic capillary circulation is actually impeded, in the way supposed, as a consequence of imperfect elimination of the urinary constituents. I allude to the frequent occurrence of hypertrophy of the left ventricle of the heart in cases of chronic renal dropsy, when there exists no obvious disease of the valves or vessels to account for such hypertrophy. The very frequent concurrence of cardiac and renal disease was long since pointed out by Dr. Bright."

"The frequent connection of cerebral hemorrhage with renal disease is another fact closely related to those already mentioned, as also the occurrence of what is sometimes called serous apoplexy. Both these phenomena are, in all probability, associated with impeded circulation through the cerebral capillaries."

The ensuing paper is "*On Fatty Diseases of the Heart*," by Dr. Richard Quain. Of this long and elaborate paper, it would be impossible to present anything like a satisfactory analysis, without extending our notice of the volume before us to a very unreasonable length. The subject is considered under the following heads—

"I. The varieties of Fatty Diseases of the Heart, and their respective characters.

"II. An account of preceding observations on these diseases.

"III. A consideration of the circumstances under which they occur—their causes.

"IV. Their Effects on the Structure and Functions of the Heart.

"V. Their Symptoms and Diagnosis.

"VI. The indications for their treatment."

Next in order we have the account of "*A case of gunshot wound, and subsequent extraction of a bullet from the bladder*," by Mr. E. M. Macpherson, with a notice in tabular form of similar cases by Mr. James Dixon.

A soldier in battle was shot in the left buttock, about the situation of the ischiatic notch, but he immediately felt such severe pain in the left testicle as made him at first suppose that part to be the seat of injury. The wound healed without difficulty, and no blood was ever detected in the stools or urine. Shortly after the infliction of the wound, a discharge from the urethra occurred with some pain in passing water. The discharge continuing, and much ropy mucus being secreted, the presence of a foreign body in the bladder was suspected, and upon the introduction of the sound found to be the case. The lateral operation was performed, upwards of six months subsequent to the receipt of the wound, and an iron ball was extracted from the bladder, weighing 1 oz. 38 grs.: it had become incrusted with a very thin layer of sandy deposit. By the end of October, two months after the operation, the patient was convalescent.

An interesting case is next related "*of scrofulous abscess of the anterior mediastinum, communicating with both sides of the chest, the pericardium, and trachea, forming a tumour above the clavicle, and simulating aneurism of the innominata artery or arch of the aorta*," by Daniel Maclachlan, M. D.

The patient was 61 years of age—when admitted into the Chelsea Infirmary, January 5th, 1849, complained of great difficulty of breathing, general debility, and constant pain in the back of the head, right shoulder and arm.

"Immediately above the sternal end of the right clavicle, and dipping underneath this bone, there was a slightly movable, somewhat flattened tumour, of the size of a tennis-ball, divided through the centre by a superficial sulcus, the integuments covering the inner half of which were slightly reddened. At this place a knuckle-like projection existed. The tumour was tense and elastic, except where it seemed to point; here an obscure feeling of fluctuation was percep

tible; it was free from pain, and neither bruit nor pulsation could be detected in it."

The right carotid beat feebly—the pulse at the temple and wrist scarcely discernible; deglutition difficult—voice husky—spoke in a whisper—respiration always impeded, occasionally asthmatic—patient could not lie down—was incessantly harassed by a teasing dry cough. The face and scalp congested—external jugulars and cutaneous veins prominent—lips livid. There was almost constant pain in the back of head and right shoulder, with pain and numbness extending down to ring and middle fingers of right arm. Arm not œdematous. A swelling, supposed to be an enlarged gland, below the angle of the lower jaw on right side. General health greatly impaired—great emaciation—pulse weak and rapid.

Whole right side of chest, anteriorly and posteriorly, dull on percussion. Sternum universally elicited a dull sound. Some fullness in the right infra-clavian region. Intercostal spaces not prominent nor different from those of left side, but the costal movements were absent on the right side, but unusually vigorous on the left. Respiration clear and puerile over the whole left side of the chest, with the exception of the præcordial region. It was entirely absent in the right side anteriorly. Along the spine, and at the base of scapula on this side, a feeble respiratory murmur, with occasional mucus râles—vocal and tussive fremitus absent. The hand applied to both sides of the chest discovered moderate vibration on left side, but none on right. Altogether, the physical signs indicated extensive effusion into right cavity of chest, and yet there were circumstances rendering a positive declaration of this hazardous.

The præcordial region extensively dull on percussion—no perceptible impulse of heart—at no period were its sounds audible, however carefully the patient was examined. Latterly, the erect posture or any sudden muscular effort occasioned faintness. The pulse, frequent and compressible, was almost imperceptible in the radial and temporal arteries of right side.

Without change in the physical signs, about three weeks after admission, rather suddenly, the respiration became more embarrassed, and the asthmatic paroxysms more frequent and severe. The difficulty of swallowing also increased. The voice now almost indistinct, cough still nearly dry, with occasionally a mixture of florid blood in the very scant catarrhal expectorations, and about ten days before death the sputa were purulent but still scanty. The tumour remained nearly stationary. January 28th, some fulness perceived along the lower part of the right side of neck, extending backwards towards the vertebræ, without any sense of fluctuation. Neither in this swelling nor in the circumscribed tumour was there ever any impulse communicated on coughing. January 30th, a needle was introduced into the most prominent part of tumour, and pus being discovered, a small opening was made, when nearly three ounces of curdy sero-purulent matter escaped, the walls of the abscess collapsing, and the tumefaction towards the spine partially subsiding.

"From this date, the patient gradually sank—on the day after the operation his breathing was more free. Each fit of coughing was now accompanied with a jet or gush of sero-purulent fluid from the opening, and the quantity discharged during the day in this manner was very considerable. The exhaustion prevented a satisfactory physical exploration. On the 2d February, the right side of the chest, from the clavicle down to the nipple, had gained its lost sonoriety in a remarkable degree, and the respiration in the apex of this lung was now puerile. The dullness and absence of the respiratory murmur lower down remained as heretofore. Posteriorly the chest was not examined. No change was perceived in the sternum nor in the region of the heart. The respiration

in the left lung had diminished in intensity, acquiring, with the partial relief to the right lung, a more normal character. Death happened on the 7th of the month."

The previous history of this case as given by the patient is vague and unsatisfactory.

The appearances discovered upon a post-mortem examination were enormous thickening of anterior mediastinum—the free surface highly vascular; between its laminæ, in the substance of a diseased mass of hypertrophied cellular and adipose membrane, there was an almost empty abscess, capable of holding a billiard-ball. This communicated by several fistulous openings with the right side of the chest, and with the pericardium by a very distinct ulcerated perforation, admitting the little finger, situated near the right auricle. It also communicated, by one or two openings, with the tumour or abscess in the neck. The internal surface of the trachea was highly vascular, as was the mucous membrane lining the first divisions of the bronchi. Midway between the larynx and bifurcation of the trachea, on the anterior and internal aspect, three or four warty granulations, of the size of a split-pea, were observed, apparently the terminations of fistulous openings, through the lowermost of which a common probe could be passed into the diseased mass. Larynx perfectly healthy. The innominata, and a considerable portion of the subclavian, were imbedded in the indurated structures. The sternum, vertebræ, and clavicle sound. The right pleural sac contained several pints of curdy, sero-purulent fluid. The right lung was pressed against the spine, sodden and splenified. Its pleural covering, and that lining the ribs, perhaps, paler than usual, certainly free from any sign of recent inflammation. About a pint of a similar fluid in left pleural sac. The pleuræ pulmonis et costalis healthy. Both lungs studded with miliary tubercles. The pericardium contained about eight ounces of pus, of the same nature as that in the abscess and pleural cavities. This sac otherwise free from disease. The heart sodden but healthy. The viscera of abdomen normal. As suspected, the submaxillary swelling was an enlarged scrofulous gland.

The twelfth paper is the history of a "*Case of Mollities and Fragilitas of Ossium, accompanied with urine strongly charged with animal matter,*" by William MacIntyre, M. D.

This is a highly interesting case—and not less interesting are the remarks appended to it, in reference to the pathology of the somewhat rare disease under which the patient laboured. We can spare room only for the following extract:—

"From the foregoing details, it will be seen that, although this case was stamped with characters of the most striking and aggravated kind, its real nature remained unknown to the last. The affection to which it bore the nearest resemblance, was a severe attack of lumbago or sciatica; but it was evident, from more than one feature of the complaint, that sufferings so intense must have a deeper seat and more formidable cause than mere muscular or neuralgic rheumatism. In particular, it was ascertained that the patient had lately lost strength and wasted rapidly, although his appetite continued keen, and he was consuming a much greater amount of solid animal food than he had ever been in the habit of taking when in perfect health.

"The discovery of albuminous matter in the urine naturally suggested the existence of Bright's disease; but that supposition was abandoned, on a closer consideration of the character of the symptoms, and the peculiar condition of the renal excretion. The leading symptoms were not such as usually accompany that affection. Atrocious pains, like those which assailed our patient, constitute no part of Bright's disease, while two of its constant attendants, dropsy and cerebral disturbance, were absent. The presence in the urine of an

animal principle alien to it in a normal state, might, it was at one time supposed, be attributable to erroneous vital chemistry, involving a perversion of the primary or secondary assimilating processes. This explanation was, however, deemed far from adequate, for, admitting the probability of these functions being in fault, the question as to what particular organ was affected, and what the special lesion that could give rise to a pathological condition so very anomalous, remained unanswered, and the case closed amid the uncertainty and doubt which had surrounded it from the beginning. But the information denied to the most anxious inquirers, prompted alike by the obscurity of the complaint and sympathy with the sufferer, was yielded to the first touch of the anatomist's knife. The crumbling ribs proclaimed the presence of a disease of the osseous system, and more remarkable for its phenomena than terrible in its effects."

As the dissection proceeded, a similar disorganization of bony structure was detected in other portions of the body, which had, during life, been the seat of suffering. With the lumbar vertebræ disappeared the characters of active disease and disorganization.

"The sacrum and flat bones of the pelvis were unyielding and impenetrable by the knife, but in colour they exhibited, it was thought, an unnaturally gray tint. Beyond this, the examination was not prosecuted, as the cylindrical bones of the extremities were found to resist all efforts to break them by manual force."

The thirteenth paper is the history of a "*Case of very large Hæmatocele of the Spermatic Cord, proving fatal after ten years,*" by Mr. William Bowman; to which is added a "*Case of very large Hæmatocele of the Tunica Vaginalis, in an old man, terminating fatally,*" by Mr. Thomas Blizard Curling.

The first of these cases occurred in a farmer, nearly sixty years old, and of good constitution. About ten years before his death he had been thrown from his horse against some railings, receiving a blow, probably on the right groin, where a swelling immediately appeared—confined to the inguinal canal and resembling a hernia. It was not, however, reducible—had no impulse from coughing—there was ecchymosis and no symptoms of strangulation. It was as large as a hen's egg, oval, elongated in the direction of Poupart's ligament; firm but elastic. Under simple treatment the pain and ecchymosis gradually subsided, and the tumours gave the patient no particular uneasiness. For seven years it underwent little change save a slow enlargement in size, but became at the end of that time, during exertion in walking, suddenly larger and heavier. This increase was found to depend on a vast effusion of blood, not merely about the canal, but into the tissues of the scrotum. After the disappearance of the ecchymosis, the tumour manifested no disposition to recede, rather to augment in size, and the surface of the scrotum began to exhibit large distended veins meandering across it. There was fluctuation, and a trocar was cautiously introduced by the surgeon who was now called in; a free gush of blood followed. The wound kindly healed. It was subsequently again punctured, with the same result, by another surgeon. Now, however, a tympanitic sound was perceived on percussion over the upper third or two-fifths of it; on shaking the tumour, a sound like that produced by agitating a thick fluid in a vessel containing air. This is heard as well as felt.

Towards the close of the tenth year after the accident, the dimensions and weight of the tumour were enormous.

The patient had long been confined to his bed from sheer inability to drag so great a substance about with him, and he was now also much reduced in

strength, and had a worn and haggard countenance. He had been lying habitually on his back, with the tumour resting on the right thigh, and it had become moulded by constant pressure to the shape of that part. It reached to the patella, had an oval shape, and was so heavy that it required two hands and no slight effort to raise it from its bed. Its neck ran up into the inguinal region. Its surface was crossed by many very large veins, several as large as writing-quills, which occupied deep grooves that might be felt in the hardened tissues of the dartos. The majority of these vessels took a nearly transverse course over the tumour, about an inch apart, and in somewhat regular parallel lines. The skin was dark-coloured and congested, and presented the cicatrices of the two punctures which had been made into it. At the seat of the more recent one, and also in another spot, there might be felt, through the skin, an opening or deficiency in the wall of the dense and apparently membranous investment of the tumour, circular in form, larger than a crown piece, feeling like holes punched out of a piece of parchment. In most parts, the feel of the tumour was that of a dense, solid mass; but in some parts there was a doubtful sense of fluctuation. The right testicle, with the epididymis, was at the very lowest extremity of the tumour most distant from the abdominal ring, and rested on the knee-joint. It appeared large from congestion, but slipped about naturally, forming no part of the diseased mass. Percussion gave a tympanitic sound over the more elevated portions of the tumour, and on shaking it the sound of air and fluid mingling was very audible. This, with the low irritative fever under which the patient laboured, rendered it probable that since the second puncture the contents of the sac had fallen into a state of decomposition, and in order to afford vent to the gas and other putrid matters, a trocar was thrust in between some of the large venous channels, at a spot where the covering was thinnest. Much fetid gas, and some dark-brown blood, of the consistence of treacle, evidently putrid, at once escaped. As no hemorrhage occurred to interrupt this proceeding, the opening was enlarged to an extent of three inches, by which an issue was allowed to a large quantity of the same kind of blood, mixed with large masses of old coagulum, not unlike that found in aneurismal sacs, altogether nearly filling two large wash-hand basins.

"It now became evident," says Mr. B., "that the tumour was an immense sac, situated in the course of the spermatic cord, and filled with blood, and that it had arrived at that stage when the only hope for the patient was in the complete evacuation of its contents. As for a summary removal of the entire tumour, the proposal could not be entertained. The reduced and almost typhoid condition of the patient, the extent of the scrotal covering, and especially the extraordinary size and number of the veins imbedded in the walls of the sac, and the firm and universal adhesion of the sac to the skin, quite precluded it. We, therefore, contented ourselves with making a counter-opening at the lower part for the further drain of the contents. After all this had been done, so firm and solid was the wall of the cavity that it collapsed but little, and large masses of coagula of various degrees of solidity remained within it, adhering to its inner surface. A poultice was then applied."

The patient now commenced rapidly to sink, and, at the end of a few days, died.

The case of Mr. Curling occurred in a male, aged seventy-nine. The patient had laboured for many years under a scrotal tumour, which had, within two days before Mr. C. saw him, increased considerably in size, and become painful. The swelling was now larger than the patient's head, extending half way down the thighs. When balanced in the hands it weighed heavy. It had an elastic feel, received no impulse on coughing, and was quite opaque.

Its upper boundary, which reached as high as the left abdominal ring, was not well defined. The testicle on this side was not perceptible. The integuments were red and œdematous, and the part was tender when handled. The patient could not pass his water, and the penis was so completely imbedded in the tumour that it was impossible to reach it at the navel-like orifice in order to pass a catheter. An incision was made gradually down to the sac, on opening which upwards of three pints of dark grumous blood gushed out, on the surface of which floated numerous particles of cholesterine. On enlarging the opening, and passing the finger to the bottom of the sac, several rounded bodies, larger than marbles, were felt. Their nature could not be made out, and they were not disturbed. The thickened condition of the sac prevented its collapsing after the operation. The wound was closed, and a catheter introduced into the bladder, through which about twenty ounces of urine were discharged. One week after this the patient died. On examining the parts after death, the large sac was found to consist of a dilated tunica vaginalis, the testicle being situated, as usual, at the back part. The rounded lumps proved to be masses of coagula adherent to the sac.

The next paper is the history of "*A Case of Disarticulation of the Left Condyle of the Lower Jaw, with Excision of nearly the left half of the Bone, on account of a very large cartilaginous tumour growing from and occupying the site of all this part of the bone, save the condyle and neck,*" by William Beaumont, of Toronto, Canada.

The disease occurred in a boy seven years of age. The tumour of the face had been first observed for about three months; it was at first nearly the size of a nutmeg. At the end of two months it had acquired its largest size externally, but during the last month had grown inwards into the mouth, and backwards towards the pharynx. The patient is said to have received a blow on the left side of the jaw from a boy's fist, a few months before the tumour was first observed. When admitted into the hospital, the lad, besides exhibiting externally great distortion of the face, could not speak intelligibly; he had been unable to masticate for the two previous months, and swallowed, with great difficulty, only fluid or semifluid aliment. He was thin and pale, but otherwise his general health was good.

Ten weeks and a half after the operation, which appears to have been very skilfully performed, the wound had healed externally—the external cicatrix was a mere line—a cicatrix could be seen on the inside of the left cheek, near the anterior arch of the velum. The truncated jaw near the left cuspidatis, was soundly covered by an investment like mucous membrane. The patient could masticate a crust or piece of meat without difficulty—could swallow readily, and his articulation was only slightly affected, probably from his having so long been unable to articulate. His general health was good.

The fifteenth paper is "*On Excision of the Os Calcis, in incurable disease of that Bone, as a substitute for Amputation of the Foot, with a case,*" by William Bousfield Page, of Carlisle.

The case related by Mr. Page was one of carious disease of the os calcis, occurring in an unhealthy, ill-nourished, scrofulous boy, sixteen years old. The excision of the diseased bone was performed under the influence of chloroform. Fourteen weeks after the operation the boy was discharged. He could now bear considerable pressure on the heel without suffering—but was forbid the use of the foot, or to wear a shoe, for several months. At the end of six months he was perfectly well, but from want of a proper shoe he continued to use a crutch for some time longer. Sixteen months after the operation, the patient, when sitting, could extend the foot perfectly, and imper-

fectly when standing; but in walking, the spring of the foot is so nearly lost that he has a slight limping in his gait. He wears a boot in which a piece of cork supplies the place of the lost bone; he can walk, run, and jump with little impediment; in short, for all the uses of the foot, it is as serviceable to him as the other.

From the favourable result of this, and of other cases, in which the os calcis was excised in the New Castle Infirmary, Mr. Page urges the adoption of this operation in all cases in which disease of the os calcis exists without involving the other bones of the tarsus.

The sixteenth paper is the history of "*A Case of Stricture of the Rectum, wherein an artificial anus was successfully established in the left lumbar region,*" by J. Wilson Croker Pennell, M. B., of Rio de Janeiro.

The case occurred in a gentleman about fifty years of age. Had five years previously discovered the existence of structure of the rectum. It was treated by bougies, and upon several occasions by free division of the stricture by the knife, but without more than temporary relief. To the finger the gut felt as hard as cartilage. It was found impossible to continue the use of instruments, either for the purpose of dilatation or for maintaining an open condition of the stricture after division, in consequence of the extreme suffering and constitutional irritation which ensued. Palliative treatment was resorted to. Ultimately, in consequence of violent and repeated straining at stool, the bowels ulcerated, and the fæces formed a false passage into the urethra and bladder; so that from this time nearly all the fæces passed through the penis. He had also a narrow stricture, in consequence of which, for eighteen years, it had been impossible to pass an instrument into the bladder. His sufferings now became greatly increased. Frequently the fæces were retained for days in the urethra; the bladder became daily filled with gas, producing a sensation as if it were about to burst. Inflammation and partial suppuration of the testicles took place, then inflammation of the liver and kidneys. Hectic fever came on every evening, so that the patient's system was at last evidently giving way under his protracted sufferings, and the accumulation of disease. Finally, as affording the only chance by which life could be prolonged, the operation of opening the descending colon, after the plan of Callisen, which Mr. P. prefers to that of Amussat, was decided upon and performed.

In a few days after the operation, the hectic fever ceased, and in two weeks the patient increased so much in strength and flesh, and was so completely relieved of his sufferings, as to be able to walk about with ease. At first, the urine passed entirely through the anus, but in three or four days it began to pass by the urethra, but mixed, at first, with a large quantity of pus, which gradually diminished. The urine, at times, passed by the bowel and escaped by the wound.

We are next presented with some remarks "*On the use of the Speculum in the Diagnosis and Treatment of Uterine Diseases,*" by Robert Lee, M. D. The object of this paper is to present concisely the results of the author's observations during the last twenty-three years, on the real value of the speculum in the diagnosis and treatment of uterine diseases.

Dr. Lee believes that in all the class of organic uterine diseases, comprehending fibrous, fibro-cystic, glandular, and all other tumours which are not malignant, little or no aid can be derived from the speculum in their diagnosis and treatment. He has derived no assistance whatever from the speculum in the diagnosis and treatment of any of the varieties of malignant disease of the uterus either in their early or in the advanced stages.

Dr. Lee repudiates the idea that ulceration of the os and cervix uteri is of such frequent occurrence as has been supposed by some recent advocates of the speculum.

"Never," he remarks, "in the living or in the dead body have I ever seen ulceration of the os and cervix uteri except of a *specific* character, and especially scrofulous and cancerous; but I have met with a very considerable number of cases in which it had been affirmed by others to exist during life after deliberate and repeated examination by them with the speculum, where I ascertained that ulceration did not exist in the os and cervix uteri, *nor disease of any kind*. This mistake has happened not once, and to one individual, but in a number of cases, and to several practitioners, who avow that they are 'in the daily, and almost hourly, use of the speculum.'"

"From the age of maturity to the middle period of life," he remarks, in another part of the paper, "the uterus is rarely, seldom at least, comparatively with advanced age, affected with organic disease of any kind. Amenorrhœa, hysteria, dysmenorrhœa, menorrhagia, leucorrhœa, and various nervous affections, local and constitutional, are those from which females chiefly suffer before the age of twenty-five or thirty. An examination of the physical condition of the uterus in unmarried females, either with or without the speculum, I have always refused to make, even when requested to do so, unless pain, severe and almost constant, in the region of the uterus existed, leucorrhœa or hemorrhage, which did not yield to treatment, and where the symptoms did not make me strongly suspect the presence of some displacement or organic disease. In unmarried women, whatever their rank or condition in life may be, the integrity of their structures should not be destroyed with the speculum, nor their modesty wounded by an examination of any kind without a necessity for such a proceeding being clearly shown. Even in married women who are barren, or who have had children, it is unjustifiable, on the grounds of propriety and morality, to institute an examination of any sort, unless the symptoms warrant the supposition that the uterus is displaced or is in a morbid condition, the nature of which cannot be determined by the symptoms alone. Numerous cases of leucorrhœa in young unmarried females, where rational, constitutional, and local treatment is adopted, perfectly recover where no examination is made.

"In cases of obstinate leucorrhœa, I have often employed the speculum in married women, after I had failed to detect the existence of disease by the ordinary mode of examination. In some of these cases, there has been seen an unusual degree of redness of the os uteri, sometimes affecting the whole, and at other times limited to the inner margin, with or without swelling. The white viscid discharge has been seen issuing from the os uteri. I have never seen ulceration of the orifice of the uterus in such a case, and the condition of the interior of the cervix I have never been able to demonstrate, either with the bivalve or any other speculum; nor do I believe that, in the ordinary condition of the os uteri, it is possible to see the inner surface of the cervix to any great extent by any means."

This paper is replete with important practical remarks.

The next paper is by the same author; it is a "*Supplement to a paper on Fibro-calcareous Tumours and Polypi of the Uterus*," contained in vol. xix. of these Transactions.

Appended to this paper is the history of a case, in reference to which Dr. Lee remarks:—

"It has been stated by several recent writers that fibrous tumours of the uterus inflame and suppurate; but until the occurrence of this remarkable case of abscess in the centre of a fibrous tumour imbedded in the walls of the uterus, I had never seen an example of this morbid alteration of structure, nor met with any pathologist who had witnessed the phenomenon. If the fact has ever before been observed, I am not aware that it has been distinctly demonstrated, or its importance pointed out in the diagnosis and treatment of the disease."

Next follows the history of a "*Case of Fatal Poisoning by Sir William Burnet's fluid*," by H. Letheby, M. B.

The fluid alluded to is a strong solution of the chloride of zinc, prepared as a deodorizing and disinfecting agent. A portion of this a female infant, aged fifteen months, swallowed; she was immediately seized with violent sickness; an hour and a half subsequently she was found in a semi-comatose state; the vital powers much prostrated; countenance pale and anxious; breathing thoracic and rapid; pulse quick and fluttering; general surface of the body cold and bedewed with perspiration; lips swollen and much covered with a thick transparent mucus. The inner surface of lips and lining membrane of mouth presented an opaque white appearance, as if they had been acted upon by some caustic or corrosive substance. When roused from its lethargy, the child craved cold water, and retained it in its mouth with apparent satisfaction, but on attempting to swallow the water, the greater portion of it returned by the nostrils. The throat appeared somewhat swollen, and probably was painful, as the child frequently raised both hands to its neck. On attempting to administer to the patient a solution of albumen, from the swollen and constricted condition of the throat, little or none passed into the stomach. The albumen was coagulated by the fluid matters which still adhered to the mouth. There was occasional vomiting of a frothy fluid, like curds and whey, at which times the child was roused from its heavy drowsy state. Gradually the coma became deeper, the respiration slower, the pulse more feeble, the surface of the body colder, and in the evening, ten hours from the accident, the child died.

A post-mortem examination was made 22 hours after death. Body plump and well developed; face pale and somewhat swollen; a dark brown scab on the lower lip, the effect of the corrosive action of the poison; lining membrane of lips, mouth, fauces and œsophagus of an opaque white colour; lungs slightly congested; auricles of heart full of dark semi-fluid coagula; ventricles empty, outer surface of stomach presented a peculiar mottled appearance from ramifications of dark purple vessels; intestines paler than natural; stomach felt hard and leathery; contained 1½ oz. of a fluid resembling curds and whey; its inner surface corrugated, opaque, and tinged of a dull leaden hue; this appearance stopped abruptly at the valve of the pylorus, from which point the rest of the alimentary canal had a natural appearance; the kidneys were greatly congested.

The 20th paper is the history of "*A Case in which the Urachus remained open, and a Ring-shaped Calculus, formed upon a hair in the bladder, was extracted through the Umbilicus*," by Thomas Paget.

The patient, 40 years of age, was found to be labouring under calculus of the bladder. During attempts to make water, and strong efforts at work, a portion of his urine was apt to escape at the navel, which was open. This, as far as he knew, had been the case from his birth. Mr. Paget found that the nose of a catheter was easily made to appear from the bladder at the umbilical opening. It was first proposed to distend the bladder to its utmost, with warm water, the umbilicus being tightly plugged, and the patient reclining upon Heurteloup's table, with his head lower than the pelvis, that upon removal of the plug the calculus might flow out with the water. It occurred, however, to Mr. P. to try first a finger at the umbilicus. It readily entered, and when at full length down the unnatural passage, caught within the circle of the calculus, so as to enable its being drawn along the side of the bladder and extracted. It was annular in form, and upon carefully truncating it the projecting extremity of the hair upon which it was formed, was readily seen.

"The phenomena connected with the opening at the umbilicus may be thus described. There is a circular deficiency in the linea alba an inch in diameter, its margin being thickened and of cartilaginous hardness. Through this protrudes a hernia of the size of a goose's egg, which in lieu of ordinary integument is covered by mucous membrane, the surface, however, becoming dry when exposed for any length of time. He never makes his water while the hernia is out: when called to an effort for that purpose, the first act of the bladder is gradually to draw into the abdomen the whole of the protruded substance; its first contractions have no other effect, and it seems not to have power to force the urethra until that is accomplished. At the latter part of the act, at the instant of the disappearance of the hernia, there occurs a rather forcible jet of urine from the opening. The flow by the urethra also commences at this juncture, and the bladder is emptied in the usual way, the jet from the umbilicus ceasing, not to be renewed except by a violent accelerating action of the expulsor muscles. He can retain a pint of urine.

"By watching the first contractions of the bladder, it becomes evident that to the thickened margin of the umbilical aperture are attached the muscular fibres of the bladder extended along the urachus; in fact, that the bladder and urachus are formed into a urinary receptacle, which in shape may be compared to a curved-necked cupping-glass, the urethra passing out at its lower end, and its mouth being attached by muscle to the circular aperture in the linea alba. It becomes evident, also, that the pouch of the hernia is formed by evasion of the posterior part of the neck only, which is of course attached to the upper half of the aperture, and when protruded presses upon the hard edge of the lower half sufficiently to prevent the escape of urine, except under straining efforts of the abdominal muscles. The hernia is generally out; and he wears a girdle with a thick pad of flannel to catch the jets of water which are apt to occur while he is at work.

"After the extraction of the calculus, the man was entirely relieved of his bladder symptoms."

The ensuing paper is the history of a "*Case of Ileus complicated by Hernia*," by Samuel Solly.

The patient was suddenly affected with inguinal hernia, attended with violent pain of the abdomen. The hernia not being reducible by taxis, the operation was performed. The pain in the abdomen still continued; to this were subsequently added frequent eructations and great nausea; obstinate costiveness; inability to pass his water; scarcely perceptible pulse; cold clammy skin; vomiting of a considerable quantity of a greenish bile, not feculent. On the day of his death, he passed wind and feculent matter per anum; the pain and vomiting ceased; but the system never rallied. He died thirty-two hours from the commencement of his symptoms.

The abdomen was examined the morning after his death. The internal and external rings were found quite free; and about a foot and a half of small intestine enormously distended, and nearly black, lying in the pelvis; when this was raised it was found to be girt by a band about 1½ inch long, connected with the cœcum on the one side, and with the peritoneum covering the iliacus internus muscle, close to the internal abdominal ring, on the other. This band was round and firm, and seemed to be either one of those bands of old adhesive inflammation, occasionally met with in the abdomen, or the remains of the omphalo-mesenteric duct. It must have existed a long time. It was not so tight as to have strangulated the gut in its undistended state. Mr. S. has no doubt that this band was the cause of the previous obstinate constipation, and also of the subsequent irritation of the bowels, under which the patient had laboured, though this all subsided before the fatal strangulation took place.

Next follows the history of "*Two cases of absence of the thyroid body, and*

symmetrical swellings of fat tissue at the sides of the neck, connected with defective cerebral development," by Thomas Blizzard Curling.

The first case occurred in an inmate of the Idiot Asylum at Highgate, and was supposed to be one of *cretinism*, in a female child, of stunted growth, 10 years of age. She measured 2 feet 6 in. in height. Her body was thick; her limbs disproportionately large and long; dorsal surface of body and limbs hairy; head heavy looking; forehead flat; fontanelles unclosed. The countenance had a marked and very unpleasant idiotic expression. The mouth large; tongue thick and protuberant. At the outer sides of neck, external to the sterno-cleido mastoid muscles, were two tolerably symmetrical swellings, having a soft, doughy inelastic feel. There were similar swellings, but smaller and less defined in front of the axilla. No enlargement in front of the neck; the thyroid gland could not be perceived. The child had very little power of locomotion but could walk from chair to chair, with a little assistance. She had no power of speech. She recognized her parents, and evinced some manifestations of the exercise of the will. Whilst in the institution she had a severe attack of erysipelas, after temporary recovery from which her mind seemed more developed. A considerable abscess formed in the thigh, which discharged copiously during many weeks. After this healed, erysipelas subsequently re-appeared, accompanied with glossitis and stomatitis, from which she died exhausted, six months after the commencement of her illness, and about 15 months after admission into the asylum. After death the swellings in the neck were much less in size than they had been prior to her illness. They were found to be composed of fat, and occupied the posterior triangle of either side of the neck, dipping downwards behind the clavicles, and filling the axillæ. They could be traced extending slightly over the infra-spinal muscles, and the lowest angle of the scapula. They were not enveloped in capsule, but consisted of fat of a loose lobular structure, which seemed, under the microscope, to be made up of connecting tissue and fat globules. There was not the slightest trace of a thyroid body.

The second case occurred in a female infant six months old. The child was plump, but had a marked idiotic expression, a small head with very receding forehead. Tongue large and protruding; on the sides of the neck, beyond the sterno-cleido mastoid muscles, were two soft symmetrical swellings, having a doughy feel, and incompressible. They were of an oval shape, lying obliquely across the sides of the neck, and extending from the edges of the trapezii muscles to the middle of the clavicles. The infant was said to be more helpless in her lower limbs than is usual in children of her age. The child died convulsed about one month after it was seen by Mr. Curling. On examination after death, nothing abnormal was observed in the brain, except a remarkably small development of the anterior lobes of the cerebrum. No trace of a thyroid gland could be discovered. The swellings in the neck were found to consist of superficial collections of fat tissue, without any investing envelope, and loosely connected to the surrounding parts.

"I am not," says Mr. C., "acquainted with any case on record in which a deficiency of the thyroid gland has been observed in the human body. But apart from the interest which must attach to the cases just related, from their great rarity, the development of adipose tissue forming symmetrical swellings in the neck cannot fail to add to their importance; for it is highly probable that this abnormal secretion of fat was dependent on the absence of those changes which result from the action of the thyroid, or on some imperfection in the assimilating processes, consequent on the want of this gland; and the facts here detected may not be without significance in directing the researches of future inquiries into the use of this body. In countries where cretinism and bron-

chocele prevail, it was long supposed that there was some connection between the defective condition of the brain, and the hypertrophy of the thyroid. Pathologists have recently been inclined to view the coincidence of these two affections as accidental, or as having no direct relation. In the foregoing cases, we have examples of a directly opposite condition, viz., a defective brain, or cretinism, combined with an entire absence of the thyroid, which may be regarded as tending to confirm the more modern opinion respecting the connection between cretinism and bronchocele."

The 23d paper is an "*Account of a case in which an Abscess formed in the Vesicula Seminalis, and proved fatal by perforation of the bladder, and extravasation of pus into the abdominal cavity,*" by Mitchell Henry. The case occurred in a sailor 20 years of age. He complained on admission of pain in the loins and hip joint, while his gait was that of a person labouring under morbus coxarius; upon examination, however, the hip joint was found to be free from active disease, and it was then supposed he might have disease of the kidney. The patient attributed his disease to a severe wetting to which he had been exposed six months before. Had never had gonorrhœa or any form of syphilis, and had usually no difficulty in urinating.

His symptoms are described as follows: Great tenderness and shooting pain in the left groin and hip, extending up the loin of that side, and much increased by any motion of the joint; acute febrile symptoms; a red tongue, great thirst, quick, small pulse; bowels moderately open; urine sp. gravity 1.029, thick and scanty, causing burning pain in its passage along the urethra. The urine on the second day was light in colour; and deposited a copious thick sediment, which proved to be almost entirely pus. On the fourth day he commenced to pass blood with his urine; the purulent deposit still continued. On the 10th day violent purging came on, preceded by pain and tenderness of the abdomen; next day he vomited everything; on the 13th day the discharges from bowels and the vomiting had ceased; the pulse small and frequent; extremities cold; abdomen still tender, and on the 15th day a cough set in; the abdomen became tympanitic; still very tender, and about the middle of the day the patient died in much agony, retaining his consciousness to the last.

After death the body was blanched and emaciated; nothing particular was observed in the cavities of the head or thorax. The abdominal cavity was filled with a great quantity of cream-coloured fluid pus, evidently from an abscess and not the product of peritonitis. Peritoneum in an early stage of inflammation; intestines slightly adherent; surfaces of liver and spleen covered with a layer of recent lymph. The liver, spleen, stomach and other abdominal organs quite healthy but pale. Kidneys and ureters free from disease. The bladder contained some pus, and was perforated by an ulcer as large as a sixpence. The hip joints, vertebræ, the urethra, testicles, prostate and neck of the bladder presented no marks of disease. At length the remains of a large abscess was discovered in the situation of the left vesicula seminalis, which was nearly destroyed by suppuration. The abscess had perforated the bladder, and discharged its contents into that viscus by a small rounded hole, just where the peritoneum is reflected from the sides of the bladder. The pus had, consequently, found its way into the abdominal cavity, and set up the fatal peritonitis.

"The formation of the abscess," says Mr. H., "must have been preceded by acute inflammation of the vesicula which occasioned the extreme pain which was so prominent a feature at the time of the patient's admission into the hospital, and the date of its bursting into the bladder is fixed by the passage of pus from it, mixed with the urine. The time, also, when this pus made its

way into the abdominal cavity cannot have been far removed from the attack of hemorrhage from the urethra, which took place twelve days before death."

Mr. H. refers to another case communicated to him by Mr. Cock, having a close resemblance with the above in its earliest stage, in which he thinks there is every probability that an abscess had formed in the vesicula seminalis, and in which a fatal event was probably prevented by the timely evacuation of the pus by incision through the rectum.

The following paper is a minute history from day to day of "*A case of Albuminous and Fatty Urine,*" by Henry Bence Jones, M. D. The whole of the details in relation to this case are highly interesting, but do not admit of any satisfactory analysis. Dr. Jones remarks—

"Cases of so-called chylous urine are so rare that no extended investigation of the complaint has yet been made. Indeed, no very minute investigation of a single case has as yet been published. Some minute chemical details of the present case were communicated to the Royal Society, and the chemical investigation of the fatty matter found in the urine will be the subject of a paper of Dr. Hoffman. The more purely medical part, consisting of the microscopical examination of the urine, of the history of the case, of the effects of the different kinds of diet to which the patient was restricted, and of the different medicines he took, form the subject of the present communication. The records of the treatment are the more interesting as the disease proved to be under the control of medicine; the urine returned to a perfectly healthy state. The patient resumed his occupation after giving up work for nine and a half months, and after the complaint had existed fourteen and a half months at least."

The concluding paper of the present volume of Transactions comprises some valuable "*Observations on the Prolonged Expiratory Murmur as a sign of Incipient Phthisis,*" by Theophilus Thompson, M. D. We can spare room only for the following extracts from this interesting communication. Its practical value can be fully appreciated only after a careful study of it throughout.

"No argument," remarks Dr. T., "is necessary to prove that the indications, by which we may hope to detect the commencement of tubercular disease in the lungs, demand our special investigation. The earliest signs which can be traced by auscultation are, probably, first, the modification of the inspiratory murmur, sometimes denominated jerking, in which the inspiration appears to be effected by a succession of waves; and, secondly, a modification of the expiratory murmur, consisting in an apparent prolongation, and an increase of coarseness. A careful analysis of the cases under my observation illustrating the first of these signs, namely, wavy inspiration (*Monthly Journ. of Med.*, June, 1849), has led me, for reasons formerly given, to conclude that although it may not be a decisive proof of the existence of tubercular disease, yet it probably indicates the presence in the lungs of some deposit of impaired vitality; and is, moreover, a sign of great interest and value, as affording evidence of a condition in which the supervention of phthisis, although happily not certain, is nevertheless too probable, and in which the most vigilant attention is required to avert, by suitable means, a further process of deterioration.

"The relation of the second sign, namely, prolonged expiratory murmur, to pulmonary consumption, is much more direct and significant."

Dr. T. agrees with Mr. Walshe, in considering the duration of the natural expiratory sound equal to about the fourth of that of the inspiratory; but in the cases investigated with the view to this communication, he has not recorded the expiratory murmur as abnormal, unless it were equal in duration to at least one-third of the inspiratory murmur. He believes that in health the expiratory murmur follows the inspiratory immediately without a pause. The expiratory murmur, as disease advances, may gradually increase until its

duration exceeds that of the inspiratory. In proportion to its prolongation it usually becomes increasingly coarse in quality, and at last decidedly bronchial. A change of character probably accompanies the prolongation from its commencement, but is at first too slight to be positively appreciated.

It has repeatedly occurred to Dr. T., when hereditary phthisis has manifested itself in a family, to be able, on examining the respiration of the surviving members, to prognosticate the approach of phthisis from the prolongation of the expiratory murmur alone, in the absence of any other perspicuous circumstance, either local or general.

"Where," he says, "the expiratory murmur is altered, in consequence of emphysema or bronchitis, the extensive diffusion of the sign, and the other concomitant circumstances, will usually suggest a correct interpretation; and if we are careful to separate these sources of fallacy, I cannot but believe that the sign under review will prove no useless refinement; but one well deserving of careful attention; being the most early, significant, and conclusive of the evidences of incipient phthisis. It is no valid objection that the detection of the symptom requires close attention, since the object is to trace the first appreciable inroads of an insidious disease.

"When the prolonged expiratory murmur is heard extensively, or on both sides, unassociated with bronchitis or emphysema, there is great reason to fear, not only that the disease is phthisical, but that it will make rapid progress. When the change of murmur is limited to a small portion of lung, and the general condition of the patient is favourable, the evidence of phthisical disease is fully as conclusive; but there is ground to hope that, by careful regulation of diet, by securing exercise in the open air, by promoting healthy nutrition, and administering suitable remedies, such as iodine, iron, solution of potash, and cod-liver oil, more decided mischief may for a time be averted. I have reason to think that, under such circumstances, some years may occasionally elapse before softening takes place; and I cannot but believe that when this particular sign under consideration is more generally sought for in suspicious cases of phthisical tendency, the average duration of pulmonary consumption, in persons possessing means to avail themselves of necessary comforts, will be found considerably to exceed the period commonly assumed." D. F. C.

BIBLIOGRAPHICAL NOTICES.

Art. XX.—*Renal Affections, their Diagnosis and Pathology.* By Charles Frick, M. D., Philadelphia: Lea and Blanchard, 1850.

The subjects of the above work are attracting increased attention from their important relations to various pathological conditions of the system, every alteration of the renal secretion from the normal condition indicating a corresponding functional disorder of one or more of the organs of the body or of the vital processes. Every addition to our knowledge is therefore to be hailed as affording material assistance in investigating morbid changes, and aiding in the diagnosis and treatment of affections of an obscure character.

In the work before us, the urine and its relations are separately considered in six chapters, comprising a large amount of information embraced in a moderate space, and treated in a manner indicating considerable familiarity and industrious examination. The first chapter is of a preliminary character, and relates to the proper collection of the specimens of urine to be subjected to observation, and of such superficial examinations as may be made at the bedside, and which will frequently decide whether further and more accurate investigations will be necessary. The second chapter includes a consideration of normal conditions, and the deviations therefrom, and an account of different chemical methods by which an excess of a normal or the presence of an abnormal product may be detected, the precautions necessary in practice and the comparative value of each; and, in an appendix to the chapter, a few observations on rarer ingredients and tests of a doubtful character. The microscopic examination takes up the third chapter, and contains several illustrations of the different substances observed, which have the merit of actual observation, being drawn from the author's own specimens and characteristic of the usual forms as they are presented to the eye of the observer. The pathological condition indicated by the appearances of the urinary secretions or the practical applications of the preceding observations are contained in chapters four and five. Uric acid and urea, phosphates, sugar, &c., have their various relations examined and the different views explanatory of their derivation and formation, freely noticed and compared. Views are given of the connections existing between urea and uric acid of practical importance, and the explanations sustained by a review of the phenomena which accompany the increase or diminution of either product. Urea is conceived to be derived from the perfect oxidation of uric acid in the system, and when from any cause the supply of oxygen is not sufficient, or if the proportion of ingesta is too great or require a greater amount of oxygen, then this deficiency is perceived by the uric acid making its appearance in the urine, the kidneys being the appropriate organs to throw off this excretion. The practical bearing of this theory is exhibited in gout and rheumatism explanatory on the one hand of the prophylactic agency of exercise and on the other of the injurious effect of rich (containing much fat) living and the use of alcoholic beverages, the former increasing the supply of oxygen and the latter increasing the proportion of the matters to be subjected to oxygenation; not, however, resting the production of the disease on chemical laws and agencies, but considering the nervous influence also to be imperfect in its action. The other deviations from the normal condition are similarly treated of, and, under oxalate of lime, views previously expressed by the author are again reproduced, in which the dumb-bells, are considered in some cases if not all to arise from decomposition of uric acid after excretion by the kidneys; but whether this decomposition results in the production of oxalic acid or is some intermediate stage in its formation, is not yet made out. The work concludes by directions in chapter the sixth for the examination of urinary calculi. The whole work we consider as

creditable to the author, and are gratified to find his attention so strongly directed to these investigations, in which a large field is opened for exploration, and which he will no doubt cultivate with advantage to himself and the profession. R. B.

Art. XXI.—*The Diseases of the Breast, and their Treatment.* By John Birkett, Assistant Surgeon at Guy's Hospital, &c. &c. London, 1850: pp. 264, 8vo.

This handsome and copiously illustrated volume embodies the essay to which the Jacksonian Prize for 1848 was awarded by the Council of the Royal College of Surgeons of England. The author has availed himself of all the appliances of modern science in investigating the subjects of which he treats, including chemistry and microscopy.

The subject proper of the volume is prefaced by a very good account of the anatomy of the mammary gland. From this survey of the healthy structure of the organ, the author infers that there are *three* periods during which its statical condition varies very much, with the different capacities and offices of the breast at these several periods, and that the same division may be made in studying its pathological history. Accordingly, he treats in separate portions of the book of, 1st. "The diseases occurring before puberty; 2d. The diseases during the establishment of puberty. 3d. The diseases after the establishment of puberty." The latter section comprises those affections of the organ happening during pregnancy, the puerperal period and lactation; and such as may occur at any period or age subsequent to puberty.

Before puberty, the gland in both sexes is in a rudimentary condition, possessing no special function, its life-acts being confined to those of ordinary nutrition. The diseases to which it is subject at this age are not, in general, *peculiar*, but are such as may affect any tissue. The author has, therefore, very little to say concerning them; his remarks, after enumerating the anatomical peculiarities of the organ at this early period of its development, are comprised in brief notices of the following cases: 1st. "Abscess of the breasts in an infant twenty-five days old, preceded by secretion of milk in both glands." 2d. "Tumefaction of the breasts of an infant upon the cessation of hemorrhage from the vulva." 3d. "Abscess involving the mammilla at the age of three months." 4th. "Swelling of the breast in a child sixteen months old."

In the second period, as above defined, morbid actions, though rather more frequent than in the first, are still rare, and usually of a very mild character. The novel sensations which are experienced at this time in the breast—of fulness or heat—slight tenderness on manipulation—occasional shooting pain—can scarcely be called morbid. They are incidental accompaniments to the increased nutrition of the gland, by which the true gland-tissue is developed, a tissue possessed of a higher character than it enjoyed before. Sometimes, however, inflammation affects this organ, and Mr. Birkett has seen "chronic abscess form during this period of development in a very strumous girl." He admits, also, that carcinomatous growths sometimes occur at this period. Besides these affections, the gland is liable to neuralgia, to hypertrophy, and to a precocious development.

The third period of female life is infinitely the most prolific in diseases of the breast, and it engrosses, consequently, the volume before us.

A few pages are devoted to the *anomalies* in *the number and situation of the breasts*. The author has met with "one case of congenital absence of one of the breasts, unaccompanied by other malformations;" and several instances are noticed in which absence of one or both of the mammæ accompanied some other important organic deficiency—generally of the ovaries.

"*Pleiomazia*," or a redundancy of mammary glands, is more frequent. Mr. Birkett has collected fourteen reported cases. "In one of these, five mammary glands existed. Most of the supernumerary glands secreted milk, although the women did not in all cases allow their infants to suck them." He quotes at

length some cases of multiple mammæ, and gives the names of the reporters, together with a bibliograph of reference.

The first disease of which the author treats is inflammation, and this is subdivided correspondingly with the different tissues of which the breast is composed. The author's remarks are judicious and interesting; but we do not observe anything in them which needs especial mention in a notice of this kind. The treatment which he particularly advises for inflammation of the gland consists in the free administration of *antimony* and saline purgatives, and in the application of leeches. By these means *resolution* may be induced. "But if called to a case in which suppuration appears inevitable—or, indeed, when there is reason to believe that pus has been formed, fomentations must be applied, and as soon as pus is detected by fluctuation a free opening should be made, and the contents allowed to escape. Pressure should not be used upon the part to expedite the flow of pus, but the opening ought to be sufficiently extensive to admit the ready efflux of the fluid, and perhaps somewhat solid contents. Lint, wetted with warm water, may be applied, and upon the second or third day—if the mamma be heavy, large, and pendulous—it must be strapped up with plaster, and well bandaged." We think that, in the foregoing, and also in the following paragraph, the author's views concerning the importance of supporting the breast are wise. "Most of the ill effects resulting from abscess—such as their consecutive formation and sinuses—occur for want of proper local support; and, therefore, in all cases in which the mischief appears to be deep, this plan should be adopted. Nor are poultices to be long continued, but only a small piece of wet lint is to be laid over the wound; even in the first stage of the attack, before there is any suppuration, strapping up the breast with plaster, and then bandaging it, prevents further mischief."

Several pages of this section are devoted to the subject of *chronic abscess*, with the hope of so defining the peculiar symptoms of this affection as to render it easily distinguished from "*new growths*." But we do not see that this end has been gained, before suppuration has become evident. And indeed we can scarcely expect to be so far enlightened as to be uniformly certain of this point, unless perhaps by puncturing the suspected tumor with an exploring needle, and submitting the escaping matters to a careful microscopical examination. This the author has not attempted.

The next subject of which Mr. Birkett treats is "diseases depending upon the development of cysts and intra-cystic growths." The chapter devoted to this is full, and evidently the result of much study.

Two classes of cysts are pointed out as being distinctively characterized. 1st. Those which depend upon dilatation and a morbid condition of the lactiferous ducts or acini. 2d. Those produced by a peculiar action in the fibro-cellular envelop of the gland tissue, the consequence of a morbid state of nutrition. "Each class of cysts presents fluid or solid contents, perfectly characteristic, and differing essentially in their nature and origin."

The first group may be represented in any part of the gland, near the nipple, in the substance of the gland, or on its posterior surface. The author finds that the cysts are lined by a delicate membrane continuous with that of the milk ducts, and presenting an identical microscopic character with it. "Their contents are of a mucous nature, of a pale yellow, reddish, or dull green tint. They exhibit a granular basis, fat globules, milk globules, and colostrum corpuscles, with epithelium. The color probably depends upon decomposition, or the presence of hæmatin." Sometimes the contained matters are fluid, sometimes more solid; this latter condition, the author explains by the fact that in such instances the ducts are obstructed, or are entirely imperforate, so that the fluid matter has been absorbed, leaving the solid part of the contents only. Again, it happens occasionally that this solid residuum has been the exciting cause of inflammatory action, or at least of a modified action of some kind, whereby plastic matter is effused upon the walls of the cyst so as to attach to them, more or less firmly, the solid matters which they surround; this occurs, generally, at the points where the ducts branch. The size of these cysts varies—being, as is to be expected, largest when situated in those parts of the gland where the ducts are largest. The author explains their formation very satisfactorily: An

obstruction has occurred in the course of one of the milk ducts, giving rise, in consequence of the continued secretion within it, and perhaps also of a modified nutrition of the duct itself, to dilatations of the tube at different points; in the progress of the affection, the duct contracts at the intermediate points, leaving isolated sacs, which may be entirely cut off from all inter-communication by the entire obliteration of the intermediate channel.

He finds these cysts co-existing with almost all the forms of the other diseases to which the breast is liable—simple and malignant.

The second class spoken of by the author consists of true cysts, formed within the areolar tissue uniting the different lobes of the gland. Their contents are either fluid or solid, or both. Their formation is thus accounted for: The areolar tissue contains a certain appreciable amount of fluid in its meshes, as a natural condition; through some modification of nutrition, the quantity of this fluid has become increased, so as to constitute finally a tumour of notable size; and at the same time, the walls of the cyst thus generated become more or less developed and indurated. "The epithelium lining these cysts is peculiar. It presents a very beautiful appearance; each scale is of a hexagonal figure, more or less perfect upon its sides, and contains a single central nucleus. So marked is this epithelium that I have never failed to discover its presence, even in old and long-preserved preparations, of which I could make fresh sections. It is a characteristic mark of this form of cyst, and isolates it at once from all cystoid formations which may be found in the breast."

The fluid contained in the cyst is of two kinds, as found by Mr. Birkett—one limpid and opalescent, containing no albumen, the other tenacious, slimy, opaque, and variously tinted, though usually of a pale amber colour, and containing a large amount of albumen. In point of size they vary very much, sometimes attaining exceedingly large dimensions; they occur singly or in numbers, and at all parts of the gland.

But in addition to the fluid contents, and sometimes in exclusion of this, the cysts enclose a *solid growth*, springing from the cyst-wall, and yet always more or less connected with the gland tissue, having an *eccentric* development as regards the gland, and covered with the epithelial layer before described. These growths sometimes attain a very great size. They possess a vitality of their own; nutritious plasma is furnished to them; and yet, though in a measure independent of the influence controlling the healthy organism, they adhere somewhat to the type of the gland itself, the newly organized matter being deposited so as to simulate the lobulated structure of the gland—p. 79.

The author pays minute attention to this subject, and is careful to classify his observations according to facts. His remarks are comprised in several subsections, each devoted to a particular variety of the cystic formation, as it occurs single or multiple, with fluid or solid contents, or both combined.

We cannot follow him through these subdivisions, although they are evidently based upon observations of nature, and are important with reference to the treatment of the diseased condition. All the concomitant circumstances are carefully pointed out, and as complete a history, special and general, of each variety is given as is usually to be gained.

The subject of *hypertrophy* is very fully discussed. The author arranges his observations under the following heads: hypertrophy occurring at puberty; true hypertrophy in the adult; tumours composed of imperfectly developed gland-tissue, or lobular imperfect hypertrophy; the painful tumour of the breast, a mere variety of the preceding; and general imperfect hypertrophy. Thus an important step is taken towards a more correct classification of the enlargements of the mammary gland, and a clear insight is had of their true pathology. This chapter may be perused with pleasure.

The "*hemorrhagic diseases* of the breast" are briefly noticed, under the division of "ecchymoses in the sub-cuticular tissue, traumatic, and idiocratical; blood discharged from the nipple whilst suckling; blood effused into the interlobular cellular tissue, and containing coagula; and hemorrhages depending upon morbid growths." The most interesting point here is the development of tumours composed of fibre or areolar tissue, the fibres so arranged as to form a reticulated structure or an assemblage of cells communicating with large

veins, or, in other words, an erectile growth. Mr. Birkett considers them as essentially *new structures*, and not simply modifications of normal tissue. Though not unfrequent, perhaps, in the skin, and the tissues immediately beneath, he has met with only two recorded instances of their development in the gland itself, probably in the inter-lobular areolar tissue.

"*Hypertrophy of the adipose tissue and steatoma*" is next spoken of. Then follows the subject of diseases of innervation. He uses the word *mazodynia*, to signify "a painful state of the mammary gland;" and the conditions of the breast thus characterized he divides into those which are unaccompanied by *induration* of the gland, either with or without temporary enlargement; and such as are attended with induration, general or partial, and often, but not always, temporary. We see nothing here which is particularly noteworthy.

Next in succession we find *Atrophy* of the breast treated of—including a recital of several cases in which the modification of nutrition seemed due to the external and internal employment of iodine. Several diseases which seem to have some connection with atrophy, inasmuch as we generally find that this condition is associated with a *degradation* as well as a diminution of nutrition, are introduced in this part of the volume.

Sudden variations in the size of the mammary gland seem to be not rare. This phenomenon is generally due to derangement of the menstrual function, occasioned by some indiscretion on the part of the female. But the author quotes a case occurring under the notice of one of the French military surgeons, in Algiers, in which the sudden engorgement of the breast was induced by a chill of intermittent fever; this occurred repeatedly, and was always removed by the administration of quinine. A similar phenomenon is very commonly witnessed in the liver and spleen, but we never before heard of its occurrence in the breast.

Passing over many pages devoted to the modifications of the function of the gland, we come to the subject of *Cancer*.

We may observe, however, that the *order of succession* chosen by the author for the exposition of the diseases of which he writes seems to us to be a little irregular. His aim evidently is to *simplify* and *rationalize* the study of the affections of the breast; and he would have done better, we think, had he preserved a more uninterrupted order of sequence and association among all the diseases which depend upon the *same morbid process*, or upon some aberration or modification of *the same vital actions*. However, we are not disposed to criticise minutely for this mere difference of opinion concerning a point which does not involve truth, and with regard to which an author must be allowed to consult his own convenience.

Mr. Birkett does not pretend to give a full and complete history of *Cancer*. He details very well indeed the general and local evidences of the existence of a carcinomatous growth in the breast, of the variety termed "*carcinoma fibrosum*," and indicates the treatment which he thinks is most appropriate to this as well as to the other forms of cancer, in each stage of its development. He also gives briefly his views concerning its anatomy, mode of development, progress and termination.

We do not see that he has added any fact to the amount of our previous knowledge concerning this subject, with reference either to its pathology or its therapeutics. Nevertheless, as his views are those of a careful and honest observer, they should be respected, and be allowed their due weight in the scale of analysis and comparison with those of other investigators.

M. Birkett asserts very boldly and unconditionally the specific anatomical characters of Cancer and the possibility of its identification. He says, "The appearances observed in carcinomatous growths in the mamma are so variable, depending upon so many accidental circumstances, that it scarcely amounts to exaggeration to say that we rarely meet with two precisely alike. Nevertheless, they all present more or less general and characteristic features." Again, "The elements of which this structure is composed are so characteristic, that the identification of a growth of this nature no longer remains a matter of uncertainty or of doubt." He thinks that "the essential elements of carcinoma are nucleated globules and a fibre," the varieties of cancer—the carcinoma *fibrosum*, *medullare*,

colloideum—are due to the different proportions in which these two elements exist in the morbid structure—the greater the predominance of the fibre the harder the cancerous mass. In tumours of this class, two kinds are met with —one in which the minute bodies, "*nuclei*, predominate," the other in which the "nucleated globules or cells" seem to constitute the chief material between the fibres. The *carcinoma fibrosum* presents a large quantity of fibre-tissue with a preponderance of nucleated globules; the *carcinoma medullare* presents a very small quantity of fibre-tissue, with a preponderance of the nuclei." Besides these there are other elements met with in carcinomatous growths, which are not essential to them; these are *fat* or *oil globules*, caudate bodies which are now no longer considered as characteristic of cancer, crystals, "dead matter," capillary vessels, epithelial scales, and cysts.

There is such difference of opinion among the best pathologists and microscopists concerning the possibility of identifying carcinomatous structures in all their varieties and under all circumstances and stages of development, that we shall forbear any remarks concerning the views expressed by Mr. Birkett on this point. We do not think, however, that he has pointed out the microscopic characteristics, as he considers them, of Cancer, with sufficient clearness and distinctiveness to enable any other observer to recognize the same with certainty.

The volume closes with a brief glance at the diseases to which the male breast is liable. These are few and of unfrequent occurrence, as compared with those of the female.

We are happy to see announced for publication, by M. Birkett, a work on "*Tumours, their structure, pathology, diagnosis, and treatment.*"

F. W. S.

Art. XXII.—*Mental Hygiene; or an Examination of the Intellect and Passions. Designed to show how they affect and are affected by the bodily functions, and their influence on Health and Longevity.* By William Sweetser, M. D., *Professor of the Theory and Practice of Medicine in Bowdoin, Castleton, and Geneva Medical Colleges, and Fellow of the American Academy of Arts and Sciences.* Second edition, re-written and enlarged. 12mo. pp. 390. New York: George P. Putnam, 1850.

No system of hygiene can be considered as complete in which the consideration of the intellectual, moral, and impulsive faculties, sentiments, and propensities of the human mind is neglected; no just and practical estimate of the means of securing health, of promoting the due and symmetrical development of the various organs of the body, and of prolonging their vigorous and regular activity to the latest possible period, can be reached unless the reciprocation of mind and body be taken into account. While the healthful action of the mere bodily organs, and the proper exercise of their respective functions are essential to mental health, it is not less true that the health of the body is, in its turn, dependent, in a very great degree, upon that of the mind, as evinced in the due and regular exercise of its several functions. Hence mental hygiene becomes an important branch of knowledge in which all are interested—individuals as well as communities—inasmuch as an acquaintance with it, and the carrying into practice the laws which it inculcates, is essential to the health, comfort, and happiness of each citizen, and to secure the peace and prosperity of society generally.

In the work before us, Dr. Sweetser has presented a very able outline of mental hygiene, well adapted for popular use. The views he has inculcated are correct; they are expressed in a plain and pleasing style, and illustrated by apt illustrations derived from ancient and modern authors—from the pages of history, poetry, and science. There is much, it is true, in relation to the proper culture and control of the mental faculties, passions, and propensities, upon which Dr. S. has not touched, and many points connected with the influence that causes which act primarily and solely upon the corporeal organs exercise

upon the intellect and passions, which in a work mainly designed for popular use might have been profitably introduced.

"At no time," remarks Dr. Bell (*Report on Public Hygiene, Trans. Coll. Phys. of Philada.*, Vol. iii. No. 3), "before or since, has the salutary union between mental and bodily exercise been so fully recognized as in ancient Greece and Rome, where the gymnasia and baths were resorted to alike by the philosopher and the soldier, the youthful aspirant for fame and the staid citizen. Often the same persons might be seen passing from the instruction of the professed athletæ to the lessons of the sages and orators in the lyceum and the academy; thus, while they secured to themselves health and a bodily vigour which should enhance their personal enjoyments and civic usefulness as defenders of the state, they acquired also those accomplishments that give virtue and dignity to the individual, and by reflection to his country and age. However much we may choose to overlook this connection between mental and bodily purity and health, it is not less a portion of natural law; and if true of the one, it is equally so of the many; and if true in private, it is, *à fortiori*, more valid still in public hygiene. When the historian speaks of fermentation among the masses, the poor, the dissolute, and the reckless, in a city or State, his language is scarcely figurative, and he may very appropriately add that this tendency to outbreak and disorder is kept up, if it be not in a great degree produced by physical deterioration and taint; by impure air causing bad blood and disordered brain, added to filth and bad food continually irritating the nervous system, and giving rise to a host of abnormal sensations. It is no straining in causation to say that sickness or disorder in the body politic is often the manifestation, as it is the effect, of a neglect of public hygiene. So also, beyond all doubt, have nations been driven into war, with its ever-attendant horrors and atrocities, owing to the dyspeptic condition or splenetic humours of princes and ministers of state."

Dr. S. has not, it is true, neglected to point out the baneful influence exerted upon the intellect and passions by causes disturbing the healthful play of function in the animal organs—he has not, however, we think, noticed to the full extent that baneful influence when it is reflected from individuals upon masses—or in its direct operation upon the peace, happiness, and prosperity of communities. But he has performed so well the task within the limits he has prescribed for himself, that we feel rather inclined to commend to the notice of our readers this second edition of his work on Mental Hygiene, than find fault with him for omitting points which we may consider as important, for neglecting to trace all the ramifications of evil liable to result from the abnormal condition of the intellect and passions, or for not dwelling sufficiently upon the several causes by which that abnormal condition may be brought about.

D. F. C.

Art. XXIII.—*Household Surgery: or, Hints on Emergencies.* By John F. South, one of the Surgeons to the St. Thomas's Hospital. First American from the second London edition. 12mo. pp. 280. Henry Carey Baird, Philad., 1850.

This is a very comprehensive little book; and we doubt not that many honest women, into whose hands it shall fall, will, on beholding the formidable list of ills and accidents to which it professes to minister, exclaim, with uplifted hands and awe-struck eyes, as did the astonished Frenchman on a somewhat similar occasion, "Good heavens, what a host of enemies!" It contains notices, not only of the ordinary, trifling ailments of life, as "Blackheads, Ingrowing-nail, Corns, Stye, Wetting the bed," &c. &c., but also of the more important and more recondite affections and injuries, as "Fractures, Dislocations, Ruptures, Piles, Pustules on the Eye, Inflammation of the surface of the Eye, Milk Abscesses," &c. Moreover, it treats of the different methods of abstracting blood,

of Vaccination, of Bandaging, of Wounds in their various kinds and degrees, &c. &c. &c.; and of the appliances commonly employed in the local treatment of many complaints, as poultices, plasters, blisters and the like.

The volume was written and published, as the author says in the preface, for the benefit of those only who live remote from medical assistance, and of those who, at the moment of need, are unable to wait for or to obtain professional aid. Accordingly, its descriptions of injuries and diseased conditions are very concise, and couched in familiar phraseology, and the methods of treatment which it inculcates are as briefly exposed as the author's straitened limits require. If we consider merely that a certain amount of information must be conveyed within certain allotted pages, we cannot deny that Mr. South has fulfilled satisfactorily the requirements of his publisher, and given to the public as much, probably, as it can imbibe; but we cannot refrain from suspecting that the laborious translator and commentator of Chelius's *System of Surgery* is inwardly amused at the readiness with which he has satisfied both publisher and public.

We admit that such books may occasionally prove really serviceable to some of their readers; but we have not the least doubt, on the other hand, that they induce more frequently much injury, in their efforts to make "Every man his own doctor." It is indeed amusing as well as amazing, to see the besotted pretensions which ignorance displays after reading these publications. If a woman happen to have a leaky coffee-pot, she does not entrust its repair to her own skill, but straightway commits it to some reputable tinker; if, on the contrary, her child or her husband shall have broken an arm or dislocated a shoulder, she feels herself fully adequate to cure these serious accidents, because she has read the "Hints on Emergencies," by Mr. South, and the consequence too often is that the unfortunate victim of misplaced confidence is maimed or deformed for the remainder of its natural life.

If such books were read by those only for whom their authors profess to have written them, and in the circumstances for which alone they were avowedly intended, their mischievous effects would be more easily excused, and their influence would be less widely experienced. But, unfortunately, as their authors well know, and as too many of them anticipate, such publications have a more extended circulation, being greedily sought for, consulted, and confided in by those populous classes who are too conceited, too stupid, or too mean to employ an educated professional man, even when such an one is close at hand. Moreover, these books are generally intended to be the trumpeters to the public of their authors' renown. On these accounts, therefore, we regret and are surprised that Mr. South should have enrolled himself among such companions.

F. W. S.

Art. XXIV.—*Statistics of the Amputations of large limbs that have been performed at the Massachusetts General Hospital, from its establishment to Jan.* 1, 1850. By George Hayward, M. D., one of the Surgeons to the Hospital. Boston, 1850, pp. 15, 8vo.

In the No. of this Journal for May, 1840, will be found an interesting statistical report, by Dr. Hayward, of the amputations of large limbs which had been performed at the Massachusetts General Hospital, from the time of its establishment to Jan. 1st, 1840. Dr. H., in the present pamphlet, has republished this paper, and added to them a table exhibiting all the similar operations that have been performed from that period to Jan. 1, 1850.

The facts collected by Dr. Hayward constitute so valuable a contribution to the surgical statistics of amputations that we shall present his second table, with the deductions from it.

Amputations of Large Limbs performed at the Mass. Gen. Hospital, from Jan. 1, 1840, to Jan. 1, 1850.

No.	Name.	Age.	Time of admission	Disease or injury.	Time of operation.	Place and kind of operation.	Result.	Time of disch'ge or death.	Remarks.
			1839.		1840.				
1	John Nowland,	23	Nov. 26.	Compound and comminuted fracture of the thigh.	July 25.	Above knee—flap.	Died.	July 25, 1840.	
			1840.		1841.				
2	Stillman Hubbard,	32	Dec. 24.	Caries of elbow.	March 13.	Above elbow–circular.	Recovered.	April 3, 1841.	
			1841.						
3	Bridget Duffie,	50	Aug. 14.	Compound fracture of leg.	Aug. 14.	Below knee—circular.	Recovered.	Oct. 9, 1841.	
			1842.		1842.				
4	Samuel Brown,	56	March 14.	Osteo-sarcoma of hand.	March 19.	Below elbow–circular.	Recovered.	April 2, 1842.	
5	John F. Homer,	34	March 16.	Chronic ulcer of leg.	"	Above knee—circular.	Recovered.	May 5, 1842.	
6	Jedediah Little,	73	Oct. 18.	Chronic ulcer of leg.	Nov. 5.	Below knee—flap.	Recovered.	Dec. 26, 1842.	
7	Olwyn T. Jones,	19	Nov. 16.	Disease of knee.	Nov. 19.	Above knee—circular.	Recovered.	Dec. 29, 1842.	
			1843.		1843.				
8	Henry Walker,	14	May 4.	Tubercular disease of hand.	May 10.	Below elbow–circular.	Recovered.	July 5, 1843.	
9	Elizabeth Pickett,	17	June 10.	Disease of knee.	Oct. 14.	Above knee—flap.	Died.	Nov. 12, 1843.	
10	Edward Flagg,	45	Nov. 17.	Caries in stump.	Nov. 18.	Below knee—circular.	Recovered.	Dec. 16, 1843.	
			1844.		1844.				
11	Granv. D. Bragdon,	30	Nov. 7.	Disease of knee.	Dec. 14.	Above knee—flap.	Recovered.	Feb. 18, 1845.	
			1845.		1845.				
12	Thomas Smith,	53	March 6.	Compound and comminuted fracture of the leg.	March 6.	Above knee—circular.	Recovered.	July 1, 1845.	
13	Daniel Tarbox,	60	March 10.	Ulcer of leg—20 years.	March 15.	Below knee—circular.	Recovered.	April 22, 1845.	
14	Lewis C. Blaisdell,	31	April 15.	Compound and comminuted fracture of the wrist.	April 15.	Below elbow–circular.	Died.	April 19, 1845.	
15	Michael Welch,	24	May 19.	Scrofulous disease of knee.	June 17.	Above knee—circular.	Recovered.	Aug. 25, 1845.	
16	John Field,	40	July 17.	Compound fracture of leg.	Oct. 4.	Below knee—circular.	Recovered.	Oct. 29, 1845.	
17	Michael Devine,	21	July 25.	Compound and comm. frac. of leg.	Aug. 9.	Below knee—circular.	Recovered.	Sept. 9, 1845.	
18	Hector Holmes,	21	Aug. 5.	Gangrene from injury to thigh.	Aug. 16.	Above knee—flap.	Recovered.	Oct. 3, 1845.	
19	Thomas Doland,	25	Aug. 7.	Compound and comminuted fracture of the thigh.	Aug. 16.	Above knee—circular.	Recovered.	Oct. 18, 1845.	
20	John E. Barnes,	19	Oct. 17.	Ulcer, with contracted knee.	Nov. 8.	Above knee—flap.	Recovered.	Dec. 2, 1845.	
21	Eben C. Johnson,	12	Dec. 26.	Disease of knee.	Dec. 27.	Above knee—flap.	Died.	Dec. 28, 1845.	

A Table of the Amputations of Large Limbs—Continued.

No.	Name.	Age.	Time of admission.	Disease or injury.	Time of operation.	Place and kind of operation.	Result.	Time of disch'ge or death.	Remarks.
			1845.		1846.				
22	John Hooper,	10	Sept. 18.	Disease of knee.	May 23.	Above knee—flap.	Recovered.	July 2, 1846.	
23	Alice Mohan,	18	March 7.	Disease of knee.	Nov. 7.	Above knee—flap.	Recovered.	Dec. 22, 1846.	Inhaled sul. ether.
24	Theophilus Petier,	35	Nov. 16,'46	Compound and comminuted fracture of the leg.	Nov. 16.	Below knee—flap.	Recovered.	April 3, 1847.	" "
			1846.		1847.				
25	Ann Kerr,	18	July 8.	Periostitis of foot.	April 3.	Below knee—flap.	Recovered.	May 13, 1847.	" "
26	Catharine Crowley,	56	Aug. 3.	Necrosis of tibia.	Jan. 9.	Below knee—flap.	Recovered.	April 20, 1847.	" "
27	Fanny Abbot,	42	Dec. 23.	Disease of ankle.	Jan. 2.	Below knee—circular.	Recovered.	Feb. 23, 1847.	" "
			1847.						
28	James Mitchel,	27	Feb. 20.	Compound and comminuted fracture of the leg.	Feb. 20.	Below knee—circular.	Recovered.	July 31, 1847.	" "
29	Dennis Pickett,	30	April 6.	Compound fracture of knee.	April 7.	Above knee—circular.	Died.	April 9, 1847.	" "
30	Patrick Conny,	39	March 24.	Compound and comminuted fracture of the leg.	March 24.	Below knee—circular.	Died.	March 30, 1847.	" "
31	Patrick Kidney,	22	May 25.	Lacerated wound of arm.	June 8.	Above elbow-circular.	Recovered.	Sep. 2, 1847.	" "
32	Abner Johnson,	60	May 31.	Necrosis of tibia.	June 5.	Above knee—circular.	Died.	July 4, 1847.	" "
33	Francis Manuel,	19	June 14.	Disease of fibula.	Oct. 2.	Below knee—flap.	Recovered.	May 20, 1848.	" "
34	Jacob D. Edwards,	45	June 24.	Compound fracture of arm.	June 24.	Above elbow-circular.	Died.	June 24, 1847.	" "
35	Benj. Hammond,	39	July 12.	Disease of knee.	July 14.	Above knee—flap.	Recovered.	Aug. 9, 1847.	" "
36	S. H. Jones,	25	Aug. 27.	Fungus hæmatodes—leg.	Sept. 4.	Above knee—flap.	Recovered.	Oct. 28, 1847.	" "
37	Michael Sullivan,	34	Sept. 1.	Disease of knee.	Nov. 6.	Above knee—flap.	Died.	Nov. 12, 1847.	" "
38	Patrick Dorherty,	40	Sept. 2.	Compound fracture of foot.	Sept. 2.	Below knee—circular.	Died.	Sept. 3, 1847.	" "
39	Nathan Butler,	60	Sept. 15.	Malignant disease of elbow.	Sept. 18.	Above elbow-circular.	Recovered.	Dec. 13, 1847.	" "
40	John Madden,	25	Sept. 21.	Compound fracture of leg.	Sept. 27.	Below knee—flap.	Recovered.	Jan. 14, 1848.	" "
41	Peter Caton,	26	Sept. 27.	Wound of foot.	Sept. 27.	Below knee—circular.	Recovered.	Dec. 21, 1847.	" "
42	John Nightingale,	63	Sept. 29.	Malignant disease of arm.	Oct. 2.	Above elbow-circular.	Recovered.	Dec. 13, 1847.	" "
					1848.				
43	Michael Clark,	23	Nov. 27.	Gangrene from ligature of the femoral artery.	Jan. 10.	Above knee—flap.	Recovered.	Aug. 5, 1848.	Inhaled chloroform.
			1848.						
44	Michael M'Soley,	22	Feb. 13.	Disease of knee.	March 11.	Above knee—flap.	Recovered.	May 31, 1848.	Inhaled sul. ether.
45	Benj. T. Perkins,	33	April 7.	Compound fracture of knee.	April 7.	Above knee—flap.	Died.	April 12, 1848.	" "

46	Eliz. Phenan,	6	March 13.	Compound fracture of leg.	March 13.	Below knee—flap.	Recovered.	July 31, 1848.	Inhaled sul. ether.
47	James Smith,	20	March 31.	Comp'd and comminuted frac. of leg.	March 31.	Above knee—flap.	Recovered.	May 8, 1848.	Inhaled chlo. ether.
48	Dennis Casey,	28	April 28.	Injury to arms (powder).	April 28.	Ab. & bel. elb.—flap.	Recovered.	Aug. 4, 1848.	" "
49	Hannah Donovan,	30	April 27.	Compound fracture of foot.	April 27.	Below knee—flap.	Recovered.	Aug. 10, 1848.	" "
50	James M. Jones,	23	June 7.	Disease of knee.	July 15.	Above knee—circular.	Recovered.	Aug. 19, 1848.	Inhaled sul. ether.
51	John Canfield,	10	Nov. 8.	Compound fracture of foot.	Nov. 11.	Below knee—flap.	Died.	Nov. 18, 1848.	" "
52	Dennis Hurley,	36	Nov. 17.	Rupture of femoral artery.	Nov. 18.	Above knee—circular.	Recovered.	April 7, 1849.	" "
53	Timothy Lynch,	24	Dec. 7.	Gangrene of foot—accident.	Dec. 9.	Below knee—flap.	Recovered.	March 2, 1849.	" "
54	Lucy Thresher,	26	Dec. 15.	Malignant disease of hand.	Dec. 25.	Bel. elbow—circular.	Recovered.	Jan. 18, 1849.	" "
					1849.				
55	John Rogers,	23	Aug. 23.	Scrofulous disease of foot.	Jan. 18.	Below knee—circular.	Recovered.	Feb. 14, 1849.	" "
56	Zimri Heywood,	10	Dec. 11.	Disease of knee.	March 31.	Above knee—flap.	Recovered.	May 9, 1849.	Inhaled chlo. ether.
			1849.						
57	Thomas Doroty,	30	Feb. 11.	Compound and comminuted fracture of leg.	March 17.	Above knee—flap.	Recovered.	May 10, 1849.	" "
58	Bridget Shea,	28	April 2.	Scrofulous disease of foot.	May 2.	Below knee—flap.	Recovered.	July 4, 1849.	" "
59	Ann J. Prince,	17	April 3.	Ulcer of foot—16 years.	April 7.	Below knee—flap.	Recovered.	July 4, 1849.	" "
60	Morris Brown,	40	April 2.	Compound and comminuted fracture of leg.	April 2.	Above knee—circular.	Died.	April 2, 1849.	" "
61	Lawrence Britain,	22	April 7.	Compound fracture of arm.	April 7.	Above elbow—flap.	Recovered.	May 28, 1849.	" "
62	Andrew Hall,	27	May 8.	Compound and comminuted fracture of leg.	May 9.	Below knee—flap.	Died.	May 22, 1849.	" "
63	Caleb Kendall,	42	May 9.	Necrosis of femur.	May 30.	Above knee—flap.	Recovered.	Aug. 17, 1849.	" "
64	James Brady,	37	May 12.	Compound fracture of hand.	May 12.	Below elbow—flap.	Recovered.	July 22, 1849.	" "
65	James M'Koy,	39	June 19.	Compound and comminuted fracture of thigh and leg.	June 20.	Ab. and bel. kn.—flap.	Died.	June 20, 1849.	Inhaled sul. ether.
66	Charles Dennett,	34	July 20.	Compound fracture of leg.	Aug. 22.	Below knee—circular.	Died.	Sept. 3, 1849.	" "
67	Lawrence Mazenty,	25	Aug. 24.	Compound fracture of leg.	Sept. 11.	Below knee—flap.	Recovered.	Feb. 2, 1850.	" "
68	Thomas Dyke,	22	Sept. 4.	Malignant disease of fibula.	Sept. 5.	Above knee—circular.	Recovered.	Nov. 3, 1849.	" "
69	William G. Hunting,	33	Sept. 7.	Disease of knee.	Sept. 8.	Above knee—circular.	Recovered.	Nov. 30, 1849.	" "
70	Sylvest. O. Sullivan,	33	Oct. 6.	Compound and comminuted fracture of the leg.	Oct. 6.	Below knee—circular.	Recovered.	Dec. 25, 1849.	Inhaled chlo. ether.
71	Samuel R. Emmons,	48	Oct. 17.	Necrosis of femur.	Oct. 20.	Above knee—circular.	Recovered.	July 28, 1850.	" "
72	Daniel Hogan,	27	Oct. 23.	Malignant disease of thigh.	Oct. 24.	Above knee—circular.	Died.	Dec. 23, 1849.	" "
73	Theo. S. Cushing,	32	Nov. 27.	Ulcer, in cicatrix of burn.	Dec. 15.	Above knee—flap.	Recovered.	Feb. 7, 1850.	Inhaled sul. ether.
74	David Long,	21	Dec. 15.	Compound fracture of thigh.	Dec. 15.	Above knee—circular.	Recovered.	Feb. 1, 1850.	" "

It appears from this table that from Jan. 1840 to Jan. 1850 there were seventy-six amputations of large limbs performed on seventy-four patients, two patients having two limbs removed at the same time. One of them had one leg taken off above the knee, and the other below; and the other patient had one arm amputated above the elbow, and the other below. The first patient died, and the other recovered.

There were seventeen deaths: one of these was from tetanus, and another from phthisis. All the amputations of the lower extremity were above the ankle, and all those of the upper were above the wrist.

There were	35	amputations	of the thigh, and	10 deaths.
"	28	"	below the knee, and	5 "
"	7	"	above the elbow, and	1 "
"	6	"	below the elbow, and	1 "
	76	amputations.		17 deaths.

Ten of the amputations of the thigh were performed in consequence of injury, and twenty-five in consequence of disease, and five of each of these two classes of patients died; that is to say, one-half of the former and one-fifth of the latter.

On the five patients who died after amputation below the knee, the operation was performed in every instance in consequence of injury; and in the two fatal cases of amputation of the arm, the operation was done on patients who had severe compound fractures.

Forty of the patients had amputation performed in consequence of disease, and only five died; being one in eight; and the remaining thirty-four had been injured, and twelve died, being more than one-third.

"It is apparent, therefore," says Dr. K., "that the fatal result is not altogether attributable to the operation, but is in no small degree dependent upon the injury which the patient has received, or the peculiar state of system induced by it."

"There is one circumstance that has probably been observed by every one who has had frequent occasion to amputate for railroad accidents, and that is, the great tendency of the parts in the neighbourhood of the injury to slough after the operation. These accidents, when sufficiently severe to require amputation, are usually caused by a wheel of a locomotive engine or railway car passing over the limb. This in most instances produces a compound and comminuted fracture of the worst kind."

"If the operation be performed in the immediate neighbourhood of the injury, however sound the parts may appear to be at the time, they will in most cases slough to a greater or less extent, and leave the bone protruding beyond the soft parts, so as to require the removal of a portion of it at a subsequent period. This is on every account a very unpleasant result, and we cannot feel confident that it may not happen, unless the operation be done at a greater distance from the injury than it is usual to do it in ordinary cases of accident. The vitality of the parts seems to be destroyed to a greater extent than is common in similar accidents that are caused by a less degree of violence. Or perhaps it would be more proper to say that their condition resembles that which is spoken of by military surgeons under the name of local asphyxia, as sometimes occurring from gunshot wounds. It is a state of suspended animation, differing from death only in the fact that the power of resisting decomposition is for a time retained, but the debilitating effect of an operation is very sure to destroy this."

It appears that in one-half of the operations the circular amputation was adopted, and in the other half the flap. Nine of the former died, and eight of the latter.

Forty-eight of the patients inhaled some anæsthetic agent; twelve of this number died. It is well known that it was at this hospital that these agents were first successfully employed in general operative surgery; and so entirely satisfactory have been the results that no operation of any importance is now performed there without the patient being previously rendered insensible to suffering by these means. It may not be amiss to add that no fatal effects have followed their administration, nor has any serious ill consequence in a single instance ensued from it.

From these tables, it appears then that the whole number of amputations of large limbs that have ever been performed at the hospital is one hundred and forty-six on one hundred and forty-one patients. Of this number, thirty-two died.

Eighty-five had their limbs removed in consequence of disease; of whom ten died.

Fifty-six in consequence of injury; of whom twenty-two died; being one in eight and a half of the former, and more than one in three of the latter.

69	patients had the thigh amputated—	19 died.
50	had the leg removed below the knee—	10 died.
11	had amputation above the elbow—	1 died.
11	" below "	2 died.
141		32

The ages of the patients were as follows:

Under 20 years of age,	26,	of whom	4 died.
Between 20 and 30	56,	"	11 died.
" 30 and 40	28,	"	10 died.
" 40 and 50	18,	"	5 died.
" 50 and 60	7,	"	1 died.
" 60 and 70	4,	"	1 died.
Over 70	2,	"	0 died.
	141		32

Art. XXV.—*Summary of the Transactions of the College of Physicians of Philadelphia.* From August 7th to October 1st, 1850, inclusive. Vol. III. No. 3. pp. 126, 8vo.

This number of the Transactions of the Philadelphia College of Physicians is an exceedingly interesting one. The communications made to the college, and the reports of the discussions which it contains, show that the society is most zealously and actively engaged in cultivating our science, in extending its resources and usefulness, and in upholding its character and dignity.

We shall notice some of the more interesting of the communications.

Adulteration of Lac Sulphuris.—Dr. Meigs stated "that he had for a long time been accustomed to employ lac sulphuris, as much as would lie on the handle of a teaspoon, say from four to five grains, mixed with honey and water, as a prescription in the cases of costiveness occurring in infants. Given daily, he had found it to act as an effectual aperient; and in a short time has known its use to overcome entirely the costive habit. Recently, however, he had been much disappointed in the effects of the lac sulphuris in such cases, and upon instituting an inquiry into the cause of this disappointment, he has ascertained that it is in consequence of the lac sulphuris of the shops containing but one-half of pure sulphur, the remainder being sulphate of lime. This sophistication may be readily detected by the application of heat, when a black incombustible mass will be found to remain."

Dr. Bridges remarked "that the ordinary lac sulphuris of the shops contains but forty per cent. of pure sulphur. If a pinch of it be taken between the fingers, it will be found to have a soft feel, like that communicated by an impalpable powder, whereas pure lac sulphuris will have a gritty feel. The sophisticated article is also of a white colour, while the pure article is of a cream or even dirty yellow colour."

Coup de Soleil.—"Dr. Pepper called the attention of the College to the subject of the pathology and treatment of the affection known as *coup de soleil*, or stroke of the sun, as one upon which there appears to exist very loose and erroneous notions. In looking over the hospital records, he found that within the last seven years, twenty patients had been treated in the institution for stroke of the sun; of these, *ten* died, *seven* recovered, and *three* became affected

with a chronic affection of the brain, eventuating in insanity. These patients had all been bled before admission.

"The prominent symptoms of the disease are violent convulsions, with a thready, irregular, and sometimes scarcely perceptible pulse, and dilated pupil. In the intervals of the convulsions, the patient is often affected with muscular tremors, like those of paralysis agitans. The surface is rather cool than hot. Dr. Pepper had recently witnessed four post-mortem examinations of patients who had perished from stroke of the sun. The brain exhibited no indications of congestion, nothing, in fact, of an unusual appearance; Dr. P. was, however, struck with the appearance of the heart. In all of the four subjects it was pallid, flaccid, and softened, while the other muscles of the body were florid and firm. The lining membrane of the heart and of the large blood-vessels was of a very dark, almost purple, colour. The cavities of the heart contained but little blood, and no coagulum. Louis describes similar post-mortem appearances as occurring in rapidly fatal cases of typhoid fever. The examinations referred to by Dr. P. were made from six to eight hours after death. The softening of the heart and discoloration of the lining membrane were not the effects of commencing decomposition; they were evidently the results of disease.

"By many, the symptoms produced by exposure to intense heat are supposed to be the result of congestion of the brain. Apoplexy may unquestionably result from insolation, but the cases we usually meet with during the intense heat of our summers present no symptoms similar to those which result from cerebral congestion, and demand for their cure stimulants instead of bleeding.

"In all of the cases seen by Dr. P. which terminated fatally, death took place in six hours. In those who survived, recovery was very slow; the mind continued for some time very much confused; some became insane; one became affected with partial paralysis, and one with amaurosis.

"Stroke of the sun generally occurs in persons engaged in some laborious occupation, when exposed, for the most part, to the direct rays of the sun. By the combined effects of violent muscular exertions and the heat of the atmosphere, the heart is stimulated to a degree of morbid activity, copious perspiration flows from every part of the surface of the body, fatigue speedily ensues, and the heart, exhausted by its morbid activity, causes a passive congestion of the capillaries to take place throughout the body. The disease is evidently one of nervous exhaustion. The cases of apoplexy and congestion of the brain occasionally produced by insolation should be carefully distinguished from the cases above alluded to, the pathology and treatment of the two being very different.

"In five cases which fell under the notice of Dr. Pepper, all of which were treated by stimulants—ammonia and brandy internally when the patient could swallow, and stimulating injections when this was not the case—three recovered, and two died. Dr. P. considered it a remarkable circumstance that this affection has received so little attention on the part of medical writers. In consulting the standard authorities, we find but little said in reference to it, and that little generally vague and unsatisfactory. Dr. P. brought it forward now, that it may elicit from the Fellows of the College the attention it would appear to merit.

"By some it has been supposed that coup de soleil is the result of a sudden change, produced by the action of the sun's rays in the blood; the absence of organic lesions, and the fluid condition of the blood, have no doubt led to this belief."

"Dr. Condie remarked that he recognized the cases described by Dr. Pepper as of common occurrence during every summer of unusual warmth. They are ordinarily met with among those whose labours are carried on in the open air, without shelter from the heat of the sun. He believed, also, that they occurred most commonly in those labourers who are addicted to the intemperate use of intoxicating drinks. That in these cases the morbid phenomena are the result of exhaustion, he has never had any doubt, and cannot conceive upon what principle bleeding and other depleting remedies have been resorted to in their

treatment. When called to such a case, he has invariably directed cold to be applied to the head, sinapisms or stimulating frictions to the extremities, stimulating injections into the rectum, and so soon as the patient is able to swallow, stimulants internally. But there are another class of cases produced by exposure to the direct rays of the sun, of a very different character. In these, the head particularly, and often the entire surface, is intensely hot, the eyes are injected, and the pupils contracted; the pulse is small, quick, and corded, and the tongue red and dry. The patients are delirious, morose, or restless, and in a constant state of agitation. If this condition of things be not subdued by appropriate and active treatment, a state of coma ensues, and the patient dies, as in cases of acute meningeal inflammation. That these cases are dependent upon acute meningitis, Dr. C. has convinced himself by an examination of the brain after death. In this form of sun-stroke, active depletion by the lancet is demanded; stimulants internally administered would but aggravate the symptoms and accelerate the fatal result.

"He believes the cases described by Dr. P. to be produced by the exhausting effects of active bodily labour carried on in an overheated atmosphere. He recollects that in the winter of 1818–19, he was called to a coloured preacher of one of the methodist churches in the southern part of the city, who, during the severe bodily exertions, and loud and prolonged exhortations which constitute the religious exercises of these people, carried on in an overheated, crowded, and confined room, was suddenly seized with convulsions, alternating with almost constant nervous tremors; his pupils were dilated, his countenance was slightly flushed but relaxed, his pulse was feeble and thread-like, and his surface cool and clammy. By stimulating frictions to his surface, and the cautious use of stimulants internally, his convulsions were soon quieted, and his pulse increased in volume and strength; but he lay for two or three days in a languid and almost insensible state, from which he very slowly recovered; and, for many weeks afterwards, upon any undue exertion or excitement, he was liable to fall back into the same condition. In this case the disease was produced by the exhausting effects of undue exertion in a heated and confined atmosphere; and he believed that in those who are attacked whilst labouring in the open air, during the intense heat of summer, it is also produced by exhaustion, and not by any direct influence of the sun's rays, as some have supposed. That the direct influence of intense solar heat may produce congestion of the brain and apoplexy, Dr. Pepper admits, and Dr. C. has known it to produce also well-marked acute meningitis. A gentleman about to leave the city by steamboat was detained, in conversation with a friend, until near the hour of the boat's departure. Hurrying along at mid-day, exposed to the rays of a July sun, lest the boat, with his baggage on board, should leave him, he fell down in the street in convulsions. The convulsions were followed in a few hours by all the symptoms of acute meningitis. The gentleman's life was saved by active depletion by the lancet and cups, active purging, blisters, and the other remedies adapted to a case of encephalic inflammation."

Cases of Pseudo-Membranous Croup.—Dr. Pepper read the following account of two fatal cases of this disease.

"The first case was that of a little girl, aged six years. The disease commenced with slight hoarseness and some soreness of the throat; but the child continued to play about the house, and the symptoms were so slight as not to excite the least uneasiness on the part of the parents. The following morning I was requested to visit the child, and found it suffering with slight fever, huskiness of the voice, and occasional croupy cough. The fauces, soft palate, and tonsils were somewhat injected, but no trace of false membrane could be detected. An emetic of ipecacuanha was promptly administered, and this was followed by calomel, gr. vi; during the afternoon some twenty-five leeches were applied over the larynx, with evident relief of the symptoms. During the night she took a teaspoonful of the following mixture every two hours: syr. ipecac., syr. senegæ, āā ℥j. She was also directed calomel, gr. j, every two hours.

"On the morning of the third day of her attack, there was a decided remission of the most distressing symptoms; the hoarseness, dyspnœa, and fever had

all greatly abated, and hopes were now entertained that the disease had yielded; but towards evening the fever had increased, and with it there was a decided increase of the laryngeal symptoms. The voice had now become suddenly reduced to a mere whisper, the cough was muffled, and the dyspnœa extreme; the paroxysm, however, only lasted a few minutes, and was succeeded by a decided calm. Upon inspecting the throat, now, for the first time, patches of fibrinous exudation were seen upon the tonsils. These were touched with a solution of the nitrate of silver, in the proportion of twenty grains to the ounce of water, and after this free vomiting was induced by a large teaspoonful of powdered alum mixed in molasses. The child was also placed in a bath at the temperature of 95° F., and a small blister was applied over the larynx, and allowed to remain on only one hour.

"Late on the same evening there was a return of the distressing symptoms, and Dr. C. D. Meigs now saw the patient with me. At this time the voice was whispering, the cough suppressed, and the breathing more or less stridulous. The child being vigorous, it was deemed expedient to draw blood from the arm, and the blood thus drawn—amounting to about ℥iv.—presented a decided buffy coat. In this connection, I may, however, observe that the vesicated surface over the larynx had not become covered with the diphtheritic exudation so commonly seen in pseudo-membranous croup. Some relief followed the depletion, and the child passed a tolerably comfortable night. The following morning she commenced taking, every hour, a teaspoonful of tartar emetic solution, in the proportion of one grain to eight ounces of water. During the day the attacks of oppression became more and more frequent, and we were occasionally obliged to resort to the alum emetic and warm bath to relieve those paroxysms. The vomiting was always followed by temporary relief, but at no time was there any false membrane discharged, though occasionally the secretions of the fauces, coagulated by the alum, presented somewhat that appearance.

"On the fifth day of the attack, the dyspnœa, loss of voice, and stridulous breathing had become more permanent; the pulse was feeble, and the patient evidently more prostrate; there was slight œdema of the face, and the lips and nails were a little blue. She was now directed wine whey and chicken soup; and, in place of the tartar emetic, she took one of the following powders every two hours: antimonii sulphuret. præcip., grs. ii, potassæ nitrat., grs. xviii, calomel, grs. ii, divided into eight powders. No important change occurred in the case up to the following day, when at the time of visit there was another remission, and the patient really appeared better. The exudation had entirely disappeared from the palate and tonsils; distinct vesicular murmur could be heard throughout the lungs, masked only occasionally by sibilant and sonorous rattles; and the percussion over both lungs was perfectly natural. During the day, however, there was a return of the severe croupy symptoms; and at such times the little sufferer would tear at her throat in the greatest agony. Emetics, with the warm bath, and an occasional anodyne enema, afforded temporary relief; but about five o'clock the same evening, whilst emerging from the bath, she was seized with general convulsions, accompanied by dyspnœa, threatening immediate dissolution. I had left the patient but a few minutes, and on my return found that several medical friends had been called in during the alarm of the family. The pulse was frequent and feeble, the respiration hurried and laborious, and the child more or less cyanosed. Strong wine whey was now freely administered, whilst, at the same time, sinapisms were applied to the extremities. Under this treatment, the circulation and respiration were again, in a measure, restored, and the child's condition rendered far more comfortable.

"It was, however, apparent that another such attack must inevitably prove fatal. Other means having failed, tracheotomy now appeared to afford the only chance. The operation was not urged upon the parents, but was anxiously sought after by them. Accordingly, at six P. M., the child was placed upon the table, and the trachea opened by Dr. Goddard, in the presence of Drs. C. D. Meigs, Page, and J. H. B. McClellan. A folded pillow was placed under the neck, so as to bring the trachea into bold relief. An incision, about an inch and a half long, and nearly an inch deep, was necessary before the trachea could be exposed; several of its rings were now rapidly divided; but at this

stage of the operation there was some slight delay, owing to the necessity of applying a ligature to control the copious venous hemorrhage. When the trachea was first opened, the child had a convulsive movement, and rapidly passed into a state of perfect syncope; but from this it soon recovered, and the blood, which had been drawn into the bronchia by the acts of inspiration, was now forcibly driven out by the violent expiratory efforts. Small portions of the trachea on either side of the incision were now removed, so as to leave an opening somewhat larger than the rima glottidis; and this was kept open by means of a thick leaden wire passing under the neck, each end pressing upon the lips of the wound. By a delicate pair of forceps, several large pieces of false membrane were drawn out of the trachea, whilst any viscid mucus or other secretions which tended to obstruct the orifice were carefully removed by small pieces of moistened sponge. It was not deemed necessary or expedient to swab out the trachea by means of a small probang, as recommended by Trousseau; nor was a solution of the nitrate of silver applied to the mucous membrane, with the view of preventing further exudation. In fact, the respiration through the artificial opening appeared so free and easy that it was considered best not to resort to any apparently uncalled-for manipulations. To prevent the injurious effect of cold air coming in immediate contact with the sensitive bronchia, an elevated temperature of the air of the apartment was maintained throughout the after-treatment.

"About one hour after the operation, the pulse was 130, and the respirations about thirty in the minute. The temperature was also good, and the colour had returned to the cheeks and lips. The child appeared perfectly conscious, but of course could make no articulate sound or even whisper, since no air now passed through the glottis. She also swallowed with great ease the milk punch which was administered on account of the exhaustion consequent upon the operation. When small pieces of ice were placed in the mouth, they were eaten with avidity and apparent pleasure. Towards morning, however, there was an evident change for the worse; the fluids given by the mouth now passed into the larynx, and appeared at the wound, and thus tended to excite spasmodic cough; the pulse rose to 140, and became more feeble; and carpo-pedal spasms were almost constant. To relieve this spasmodic condition, several enemata of laudanum were administered, but without affording any relief. From this time the respiration and pulse gradually became more frequent and feeble, and the patient gradually sank, and expired at two P. M. the following day—just twenty hours after the operation, and about six days from the commencement of the attack.

"*Examination post-mortem the following day.*—Patches of false membrane were found adhering to different parts of the larynx, particularly about the ventricles; and the mucous membrane throughout was minutely injected and somewhat tumid, but not ulcerated. Commencing about one inch below the opening, the trachea was completely coated with firmly adherent plastic or fibrinous exudation, which extended into the large bronchia, and even into some of the minute ramifications. The small bronchial tubes were not, however, so completely obstructed by the false membrane as to preclude the possibility of air having entered the cells of the lungs during forcible inspiration. The exudation was, however, perfectly white, and exceedingly tough, so that it could be drawn out in small strips or shreds. The mucous membrane of the trachea and bronchia was in much the same condition as that of the larynx. No pneumonia or emphysema, or even congestion of the lungs could be detected. The right cavities of the heart contained a large and firm fibrinous concretion, which was prolonged for some extent into the pulmonary artery. The other organs appeared to be perfectly healthy.

"In the case narrated, the exudation did not commence in the fauces, as is most commonly the case in the diphtheritic form of croup, described by Bretonneau and other continental authors. This absence of plastic exudation on the tonsils, together with the fact that no false membrane was discharged in the act of vomiting, rendered it somewhat difficult at first to recognize the exact character of the disease. The vibratory sound mentioned by Barth and Roger as indicating the presence of floating false membrane in the larynx and trachea,

though carefully sought after, could not be detected in the present instance. The loss of voice, in connection with the stridulous breathing which supervened at the end of the second day, were well calculated to excite the worst suspicions; and it was those symptoms which led to the further examination of the throat, and the ultimate detection of the exudation on the tonsils. It is, however, by no means improbable that at first it was in reality a case of simple catarrhal croup, and that the exudation was but the ultimate result of a high grade of inflammation occurring in a vigorous child. This view of the case is more or less confirmed by the fact that no diphtheritic exudation was formed on the vesicated surface, as so commonly occurs in an asthenic condition of the system. In this case the character and extent of the false membranes were different from what occur in ordinary diphtheritis; they were tough and white, and extended far into the ramifications of the bronchia, whereas, in the few cases of diphtheritic croup that have fallen under my observation, the membrane has been ash-coloured, soft and pulpy, and in a great measure confined to the larynx and trachea. Guersent states that in not more than one case out of three does the false membrane extend into the bronchia. Dr. C. West, on the other hand, states that in England nothing is more common than to find the plastic exudation impacted into the small bronchia, and such is most unquestionably the case in the asthenic form in our own country.

"From the history of the case, it is by no means improbable that the inflammation invaded the bronchia, trachea, and larynx simultaneously, and gave rise to the rapid deposit of false membrane on the different parts of the mucous membrane. Under such circumstances, the application of caustic to the tonsils with the view of preventing an extension of the mischief to more vital parts could have been of but little avail. It is also quite evident that in such a case the operation of tracheotomy would afford only a very slight prospect of success; in the present instance, however, the true state of the case was only revealed after death. But a few hours previous to the operation, distinct vesicular murmur could be heard throughout both lungs; and from this the inference was fair that in all probability the bronchial tubes were unobstructed. Under this impression the operation was performed, and yet the autopsy revealed a considerable amount of exudation in the bronchia—not sufficient, it is true, to have prevented the development of the respiratory murmur heard so distinctly during life, but quite enough to have very materially interfered with the ultimate result of the operation.

"The next case was that of a boy aged five years; he was a delicate and feeble child, suffering with habitual enlargement of the tonsils. For the first six or seven days he had occasional cough and slight hoarseness, but was not considered sick, and had been allowed to play about as usual. The compound syrup of squill had been freely given with the view of inducing vomiting, but failed to produce the desired effect. No other treatment was pursued up to the night of the tenth day, when the child becoming alarmingly ill, Dr. F. W. Sargent was called in consultation with Dr. Spackman. They found him suffering with hoarse, stridulous cough; his breathing was laborious and noisy, his face flushed, skin hot and moist, voice reduced to a mere whisper; the pulse, though greatly accelerated, was not particularly full or strong. At this time the throat was carefully examined, but no exudation could be seen; the tonsils, however, were large and inflamed. An emetic of powdered alum was now directed, an onion poultice was applied to the neck, and the child was placed in a hot bath. Calomel, grs. ii, with Dover's powder, gr. ss, were to be given every two hours; and to relieve the spasm three drops of laudanum were also directed.

"On the following day the symptoms continued much the same, and fifteen leeches were now applied over the larynx, the alum being continued, occasionally, in emetic doses during the day; equal parts of powdered alum and sugar were also applied to the fauces every two or three hours.

"I saw the patient for the first time on the following morning, or on the twelfth day from the commencement of the attack. The lips and nails were now blue, and the respiration was permanently stridulous, and attended with rapid dilatation of the nostrils; pulse 120, soft and full; surface bathed with perspiration. The tonsils were coated with an ash-coloured exudation, and

were accordingly freely touched with a solution of nitrate of silver, in the proportion of grs. xv to the ounce of water; this solution was also applied to the glottis and posterior part of the epiglottis, by means of a small curved probang. A small blister was applied to the front of the neck, and allowed to remain on for two hours. The alum emetics were continued as before, as were also the calomel powders, in connection with syr. senegæ, ʒi, every two or three hours. For nourishment, he now took freely of wine whey and broth. The next day the child was more cyanosed; dyspnœa extreme; countenance anxious; and yet he appeared free from pain, and in a listless condition. The above treatment was continued, with the addition of gr. i carb. ammoniæ every hour; and as the disease was evidently fast tending to a fatal termination, the operation of tracheotomy was proposed. The father, however, had fully reflected upon this subject, and preferred leaving the child to its fate. It expired about noon of the same day—just thirteen days from the commencement of the attack.

"The body was examined the following day. There was considerable emaciation, so that the outline of the larynx and trachea were unusually prominent for a child of that age. On cutting down upon the trachea, no blood-vessels were found over the usual seat for opening this tube in cases of croup. The epiglottis and tonsils were coated with a thick grayish exudation, and this extended into the ventricles of Morgagni, and, in fact, throughout the entire larynx; but it was strictly confined to this locality, not a vestige of false membrane being found either in the trachea or bronchia. About the ventricles the mucous membrane presented a worm-eaten appearance; considerable œdema of the glottis also existed. The mucous membrane lining the trachea and larger bronchia was soft and injected, and completely covered with muco-puriform matter. Lungs, heart, and other organs perfectly healthy.

"In connection with this case, I may mention that an elder brother had died with this disease some days previously, and that a younger member of the family had been threatened with the same affection, which, however, was fortunately checked by the timely administration of an emetic, and the prompt application of the nitrate of silver to the tonsils. All the children of this family had enlarged tonsils, and were evidently of a scrofulous diathesis; the parents, however, were apparently perfectly healthy.

"In this case the disease was evidently more asthenic, and the appearances revealed by dissection were such as are most commonly found under these circumstances. The exudation was ash-coloured, soft, and pulpy, and limited to the larynx. No doubt this condition would greatly have favoured the operation of tracheotomy, since there would have been no obstruction below the orifice: under these circumstances, it is highly probable that the muco-puriform matter would have been readily discharged by the spasmodic cough which so constantly follows an opening into the trachea; or, at all events, these secretions could have been readily removed by small small probangs, whilst, at the same time, their further deposit could have been prevented by the alterative effects of a weak solution of the nitrate of silver instilled into the trachea, after the manner recommended by Trousseau. The prostration in the advanced stage of the disease was, in a great measure, the result of imperfect ventilation of the blood; and this difficulty once removed the child could easily have been sustained by stimuli. Besides, we should remember that in the present case the absence of adipose matter was exceedingly favourable to the operation. There is one interesting fact, however, in connection with this case, which was not alluded to when speaking of the symptoms: the day previous to the decease of the child. the state of the respiration was carefully examined, and not the least respiratory murmur could be heard over any part of the chest. From this, the impression at the time was that the bronchia were probably obstructed by false membrane; and it was this conviction which deterred us from urging the operation more strenuously. The absence of the respiratory murmur was evidently owing to the œdema of the glottis, and to the exudation in the larynx; and in this case, as well as the one first narrated, clearly shows the utter impracticability of arriving at any positive conclusion as to the exact condition of the bronchia in membranous croup.

"In regard to the cause of the disease in the last-mentioned case, there is

surely no good reason why the mere occurrence of a similar disease in several members of the same family should be referred to contagion. They all possessed the same character of constitution, and were exposed to like causes, and were therefore liable to the same ailments. These cases bore no analogy to the malignant sore throat which so often occurs during the prevalence of epidemic scarlet fever, and which not unfrequently extends to the larynx, and thus produces fatal croup; the laryngeal affection thus induced is of course quite as contagious as scarlet fever itself, since it forms but a part of a specific disease.

"But decidedly the most important question suggested by the history of the above cases is in reference to the operation of tracheotomy. Upon this subject, medical opinion is still unsettled—by some the operation being condemned under all circumstances, whilst by others it is advocated and urged prematurely. According to Trousseau, 'Il faut faire l'operation dès que nous avons aquis la certitude qu'il existe des fausses membranes dans le larynx;' and his reasons for thus urging an early resort to the operation are based upon the well-known facts that, at a later period of the disease, the exudation is more apt to extend into the bronchia, whilst at the same time the increased state of asphyxia, and the exhaustion consequent upon protracted treatment, would grealy tend to diminish the chances of the operation. All who are familiar with membranous croup are prepared to admit that, when once established, it is attended with great danger; but at the same time even the most desperate cases will occasionally recover under judicious medical treatment. Valliex states that in 26 out of 31 cases, treated chiefly by emetics, more or less false membrane was discharged; and that, of this number, 15, or nearly one-half, ultimately recovered; whilst, out of 22 cases treated without emetics, only 1 recovered.

"The success of the operation, in connection with the statement that tracheotomy, *per se*, is attended with no special danger, has been strongly urged in its favour. Bretonneau, out of 20 operations, had success in 6 cases; Velpeau saved 2 out of 10; and Trousseau, out of 112, had 27 recoveries—or about one-fourth of the whole number recovered. This success, however, is far beyond what has been attained in England, where, according to Dr. West, 'the result of almost every instance of the performance of tracheotomy in cases of croup has been so unfavourable that the operation is scarcely looked on as a justifiable proceeding.' These different results can only be reconciled by the fact that on the Continent the disease is most frequently confined to the larynx, whilst in England, as well as in this country, the trachea and bronchia are not unfrequently simultaneously involved. The number of cases of croup in which tracheotomy has been performed in the United States, is as yet too limited to enable us to arrive at any positive conclusions. Hitherto, it must be confessed, the operation has been viewed in this country with much distrust, owing, in a measure, to the unfavourable reports by British writers, and in part to the comparative want of success in the few cases in which it has been here performed. How important, then, is it that every case of tracheotomy for croup, whether successful or otherwise, should be placed on record, so that, in the end, we may be enabled to judge for ourselves as to the merits of this vexed question.

"Is it true that tracheotomy is, *per se*, unattended with danger? It is well known to the profession that the trachea has been repeatedly opened, for the extraction of foreign bodies, without giving rise to any untoward results; but, to say the least, it is exceedingly improbable that the short and plump neck of a child can be freely incised down to the trachea without endangering, in the least degree, the life of the patient, and more especially so in a case of croup, where the veins are enormously distended. And yet Trousseau has opened the trachea one hundred and twenty times without giving rise to any immediate bad effects; it remains, however, to be proved that the convulsions, copious hemorrhages, and frightful syncopes, which so often follow this operation, have not had much to do with the unfavourable results which followed in three-fourths of these cases. In the instance which I have just narrated, the hemorrhage was severe, and without great dexterity and presence of mind on the part of the operator, the child would have perished in a few moments.

"If, then, it be true that even the most desperate cases of membranous croup

do occasionally recover under judicious medical treatment, and if, at the same time, it is quite impossible to ascertain, with any degree of certainty, either by the general or physical signs, the condition of the bronchial tubes, it appears difficult to resist the conclusion that an operation so severe and so hazardous should not be performed except as a dernier resort."

"Dr. Ashmead remarked that during his residence in Paris, last winter, he heard but little of this operation, except from Trousseau, its great advocate and supporter. He had seen two operations at the Children's Hospital, one by Trousseau, in which the patient recovered, and the other by Guersant, in which the patient died. In the latter, the operation was performed in the advanced stage of the disease, while in the former it was performed early. It was the practice of Trousseau to operate at an early period, and hence, probably, his success. In England, and in this country, the operation is not considered justifiable until after all medical means of cure have failed; and this may be one reason why the results differ so widely from those reported in France. He also heard it stated in Paris that the measure of success was much greater in private practice than in the hospitals.

"Dr. Ashmead had performed the operation twice himself. In one case, where it was strongly urged by the family, he had operated on an only child in an advanced stage of the disease. The immediate result was most gratifying: the distressing dyspnœa was relieved, and the child fell into a pleasant slumber. In a few hours, however, the bad symptoms returned, and the little patient soon sank away. The parents, who were at first delighted, now became exasperated at the doctor, and he was obliged to get out of the way to escape their vengeance.

"Dr. A. fully agreed with Dr. Pepper as to the impossibility of forming an accurate diagnosis of the state of the bronchial tubes by auscultation, and considered this one of the objections to the operation. He had made up his mind never to recommend tracheotomy, and only to perform it when strongly urged by those most interested, and then always with the full exposition of its dangers and uncertainty."

Peculiarities of the Sphenoid Bone.—"Dr. Neill called the attention of the college to certain peculiarities of the sphenoid bone, not described by anatomical writers. In the description of the bone given in the books, we are told that the pterygoid processes project downwards perpendicularly, which may be the case in a large proportion of the skulls of the European races. If, however, we examine a variety of specimens, we find that the perpendicular direction of the pterygoid processes does not invariably prevail. Thus, in the African, they are very oblique, running nearly parallel with the oblique line of the face. In the Mexican skull they are very nearly vertical. There will very generally be found a parallelism between the direction of these processes and the line of the face. In the fœtus they have the peculiar obliquity of the face; and in all races, the nearer the characteristics of the adult head approach those of the fœtal will the direction of the pterygoid processes be found more oblique. Dr. Neill was not aware that the fact just stated had any important practical bearing; the direction of the pterygoid processes will, however, have some influence upon the direction of the posterior nares, of which it is important that the surgeon should be aware. The more oblique the processes, the more oblique will be the posterior nares, which follow, of course, the direction of the former."

Poisoning from eating Peach-kernels.—The following case of this was related by Dr. Keating:—

"On Tuesday, the 10th of September, I was sent for, in great haste, to visit the child of Mr. B. in Gaskill Street.

"Upon reaching the house, I found that a little girl, of three years of age, who, up to the moment when I was sent for, had enjoyed excellent health, had come in from playing with an older brother, and suddenly placing her hand on her head, fell on the floor perfectly senseless.

"When I saw the child, she was lying on the bed insensible; respiration slow, deep, and sobbing; no convulsion of the limbs, but a faint, flickering motion was observable about the muscles of the lips; hands and feet were icy

cold; eyes prominent, pupils dilated; pulse slow and feeble; finger nails of a livid colour, and the hands slightly clenched. My inquiries elicited nothing from the mother which could account for the extraordinary condition of the child. Despairing of obtaining any clue to the case, and as a dernier resort, I applied my face to the child's mouth, and immediately recognized in her breath a strong odour of prussic acid. The idea of peach-kernels immediately suggested itself to my mind; and, upon interrogating her brother, I found that, previous to her coming into the house, she had managed to snatch from him a large quantity of peach-kernels which he had been preparing for his mother's use. He also informed me that he saw her put a large quantity in her mouth at a time. Convinced, then, that I had to deal with a case of poisoning by prussic acid, I immediately had recourse to the proper treatment. I dashed a small pailful of water upon the child's head and spine, and in a few moments had the satisfaction of seeing her take a full respiration, and evince some signs of returning consciousness. I immediately administered an emetic, consisting of five grains of sulphate of zinc and ten of powdered ipecac.; this was followed by copious emesis, consisting of a large quantity of peach-kernels, emitting all the peculiar fragrance characteristic of prussic acid. Sinapisms were also applied to the spine and to the extremities, and after the vomiting had ceased, I ordered thirty drops of the aromatic spirits of ammonia in water, to be repeated every half hour. The child appearing much relieved, and consciousness having entirely returned, I left the house.

"Upon visiting my little patient two hours after, and finding that the pulse was full and rapid, face flushed, conjunctiva injected, and that she was complaining of violent pain in the head, I took about three ounces of blood from the arm, and ordered cold applications to the head and an enema for the bowels. When I returned again in the evening, all untoward symptoms had vanished, and the child was playing about, and apparently as well as ever.

"Upon testing the contents of the stomach with the liquor potassæ and a solution of the sulphate of iron, the Prussian blue was instantly precipitated in abundance. From the condition in which I found the child, I have every reason to believe that had not the proper remedies been promptly applied life would have soon become extinct.

"As it is important to be able to diagnosticate at once the difference of the symptoms consequent upon poisoning by opium and prussic acid, I will enumerate those points which struck me most forcibly in this case.

"In the first place, the history of the case affords us a means of distinction, the rapidity with which the effects supervened, the rapidity with which the case terminated, and then the absence of blueness in the skin, and of the slow, full pulse.

"It may seem strange that an article which is so generally used, and of which, consequently, children must be constantly partaking, should so seldom manifest such serious consequences. In answer to this, we would suggest that the quantity eaten in this case was unusually large, and that as the peaches were exceedingly acid, it may be that the kernels contained an unusual quantity of the acid; or perhaps the child may have had some idiosyncrasy, by which she was peculiarly liable to the poisonous effects of the acid, even in the minutest quantity. Moreover, it is a question of much importance whether, perhaps during the summer months, numbers of children may not have succumbed to the fatal effects of this acid, without their real condition ever having been suspected. The accumulative effects of this poison have been generally denied; the rapidity with which death supervenes generally depends upon the quantity taken; it is generally thought, however, if a person live forty minutes after the poison has been swallowed, that the danger is over.

"It would be well for medical men to recollect that the bitter almond, cherry laurel, bird cherry, peach, the leaves and seeds of the nectarine and apricot, and the seeds of the plum and cherry, all contain some of this acid.

"Parents, then, should keep a strict watch over their children, for it is an admitted fact that half of the deaths of childhood occur from the kind and quantity of ingesta; and hence the mouth not only forms the avenue through

which the life-giving principle is received, but is also, unfortunately, the portal through which the fell destroyer most generally creeps in."

Appended to the number is the report by Dr. Bell of the standing committee on Public Hygiene. This is an elaborate and valuable paper on a subject the importance of which can hardly be overrated; one to which we have on several occasions endeavoured to draw attention, and on some future occasion shall again recur to it. At present, our limits will not allow us to do so, but we must now content ourselves with recommending the report of Dr. Bell to the consideration of the profession.

Art. XXVI.—*Woman; her Diseases and Remedies. A series of Letters to his Class.* By Charles D. Meigs, M. D., etc. etc. Second edition, revised and enlarged. 8vo. pp. 690. Philadelphia, 1850: Lea & Blanchard.

In this second edition of Dr. Meigs' well-known and truly original work on the pathology and therapeutics of the female, some important additions have been introduced, and some judicious amendments made. There is much in these letters that is valuable; the practical observations of one who has been so long and so extensively engaged in the active duties of his profession cannot fail to interest and to instruct, not merely the student but the practitioner. There are, it is true, portions of the work which we were in hopes would have been omitted in this edition—but as the author has thought proper to retain them, however much we may regret it as a matter of taste, we have certainly no legitimate right to complain. The parts alluded to are, however, objectionable only in regard to style, and from the fact that they are, in our opinion, altogether out of place in a grave didactic treatise on the diseases of woman, intended mainly for the instruction of the student and young physician. It is true, we cannot always agree with the physiological and pathological views of the author—ingenious as these must be confessed to be, and enforced as they often are by a most plausible series of illustration and an almost irresistible earnestness of exposition. The soundness of the practical directions of Dr. M., generally speaking, we most cheerfully acknowledge. We must point, however, to one instance in which we believe his therapeutical directions are calculated to mislead, and that is in reference to puerperal fever. The true pathology of puerperal fever is as yet far from being settled—cases, we know, do occur of so decidedly an inflammatory character as to call for the prompt and copious detraction of blood, and by which, in its early period, the disease will, in the majority of cases, be cut short. Had Dr. M. confined his remarks strictly to this form of the fever, we should have come to dispute their correctness; but, if we understood him aright, he considers early and copious blood-letting as the remedy mainly to be depended upon in all cases of puerperal fever. Now there certainly have been epidemics or rather endemics of this disease, in which no indications warranting a resort to were present, and the cases in which blood was drawn at the commencement of the attack invariably terminated fatally. Under the general denomination of puerperal fever, we believe that there have been included diseases differing from each other somewhat widely in their pathological character, and each demanding a different treatment.

With all its faults—real or presumed—the work of Dr. M. is certainly calculated to impart valuable instruction to the student, and cannot be consulted even by the practitioner without profit. D. F. C.

ART. XXVII.—*Practical Ventilation, as applied to Public, Domestic, and Agricultural Structures, being an Elucidation of Plans and Suggestions, of easy application, for ventilating every Species of Architectural Structure, with Remarks on Heating, Construction of Fire-places, Cure of Smoky Chimneys; and an Appendix on the Ventilation of Ships, Steamboats, and Railway Carriages.* By ROBERT SCOTT BURN, Engineer. London and Edinburgh, 1850. 12mo. pp. 208.

Useful Hints on Ventilation; explanatory of its Leading Principles, and designed to facilitate their Application to all kinds of Buildings. By W. WALKER, Engineer. 12mo. pp. 131. London, 1850.

THESE are highly useful treatises, written by competent persons. The subject of ventilation is one of vital importance, and the best means of accomplishing it, under various circumstances, must constitute one of the chief studies of all who are interested in promoting sanitary reform. The main objects sought to be accomplished have been ably pointed out by members of the medical profession, who are, of course, the first to recognize the evils flowing from want of the means of getting rid of foul air, and of efficient methods for supplying fresh air. Intelligent architects and engineers have exercised their ingenuity in devising and perfecting plans for these purposes, and the two little works named at the head of this article, with their accompanying drafts and sketches, are valuable contributions to the subject.

Many years have elapsed since it has been demonstrated that the inhalation of the impure air which had been previously expelled from the lungs exerted a most deleterious effect upon living beings subjected to its influence: still it has been only quite recently that the importance of getting rid of foul air, and securing a free supply of fresh air in dwellings, and houses of every description, has been fully recognized. It cannot be too generally made known that the supply of pure air to the lungs conduces not only to the proper health of the body, but to the best performance of the mental faculties. The brain and other nervous centres from which emanate thought and motion cannot communicate to the great functions of life the highest measure of energy and activity adapting them to the performance of their happiest efforts, if supplied with dark and partially decarbonized blood. When even temporary exposure to impure air is fraught, as we know it is, with so much inconvenience and distress, what must be the measure of permanent disability and real disease resulting from protracted exposure of living beings in too small or too crowded houses, shops, manufactories, ships, prisons, work-houses, hospitals, &c. The answer has been often given in the history of plagues, in all ages, and in the modern bills of mortality, and though less conspicuously, not less certainly in the hereditary diseases, and susceptibilities, and malformations so common in every crowded population. Admirable reports have been made within a few years to the British Parliament, by committees appointed to investigate the sanitary condition of large towns, who have made appalling statements of the mischievous effects arising from imperfect ventilation. Individuals have added their efforts, and by such combined means the English public have become enlightened, and the aid of practically scientific men has been called into requisition, to devise the best plans for removing evils under which the human family has so long suffered. Legislative action has given a great impetus to the movement, by granting the necessary authority to open blind courts and narrow alleys, and to lessen the density of population in some cases where this could be effected. Philanthropists have been shown that they might lend those efforts, so promptly bestowed upon alleviating the condition of the impoverished sick and infirm, by showing how their dwellings might be improved and disease prevented.

G. E.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Structure of the Muscular Substance of the Heart.*—The following important observation is by Remak. The facts observed by him are best seen in the thin muscular layers which can be procured, especially in sheep, from the commencement of the great veins of the neck or the pulmonary veins. Two sets of muscular fibres can be distinguished; some which run parallel, and others which are between these and interlace, connecting the adjoining parallel fibres to each other. The network formed by the connecting or intermediate fibres differs in complexity in the different parts of the heart, auricles, ventricles, &c. Sometimes, instead of these intermediate connecting fibres, the sides of two parallel running fibres approach and fuse into each other (*eine partielle Verschmelzung der Ränder zweier Hauptfasern*). The intermediate fibres are often much smaller than the parallel, and of variable strength; occasionally, as in the ventricles, they are as large as the parallel fibres; it is then very difficult to make out the arrangement; yet in no place, either in the auricle or ventricle, is this arrangement wanting. This observation of Remak's has been confirmed in Wurtzburg by Virchow.—*Med. Times*, Sept. 7, from *Müller's Archiv.*, 1850. No. II.

2. *The Terminations of the Olfactory Nerve.*—Dr. Hom describes the terminations of the olfactory nerves as being easily seen by taking a piece of a frog's nasal mucous membrane, placing it between glass, and examining it with a power of from + 216 to + 300. The extremities of the nerve-fibres, sometimes dilated and forming club-shaped processes, can be seen at their extremities, winding round and sometimes returning to the parent branch. Besides these, other nerves with broad diameters are seen passing in various directions, and present the characters of fine cerebral fibres.—*Med. Times*, Sept. 7, from *Müller's Archiv.*, 1850. No. II.

3. *On the Structure and Physiological Uses of Peyer's Glands.* By Ernest Brucke.—In the autumn of 1849, Brücke made some attempts to inject the most minute lymphatics of the bowels, by forcing oil of turpentine, coloured with alkanet root, into a portion of the intestinal tube of the cat. After the pressure on the piston of the syringe had been for a short time maintained, he observed that some of the lymphatics of the mesentery became filled, and that the coloured oil passed through the so-called *pancreas asellii;* and finally reached the *receptaculum chyli* and thoracic duct. On more minute examination, it was found that the only trunks of the lymphatic system injected were those which took their origin from the neigbourhood of the glands of Peyer. These trunks were formed by the union of minute arborescent branches, which obviously ran on the surface of the bowel, and whose finest twigs proceeded from

the glandular patches. A reddish tinge was distinguishable in the interior of some of the small glands, but was more distinct in the narrow interstices between them. Brücke supposed that by distending the cavity of the bowel, he had succeeded in rupturing the capsules of Peyer's glands, and that the injection had, through these breaches, passed into the lymphatics. This view was confirmed by other experiments, in which a column of fluid was substituted for the injecting syringe. There was no extravasation; and the uniform way in which the injection ran, commencing in a reddish point in the gland, and then proceeding by minute channels to form an arborescent network, terminating in trunks, which proceeded through the mesentery, seemed to indicate that the fluid passed by natural canals. The success of these injections suggested the inquiry, how far the glands of Peyer resembled lymphatic glands. Brücke was aware of the views on the structure of lymphatics held by Professors Ludwig and Noll, of Zurich, which the former had shortly before communicated to him. "Each vas inferens," writes Ludwig, "before entering a gland divides into numerous small twigs, each of which, on piercing the *membrana propria* of the gland, loses its coats, and pours its contents into the cavity of the gland, which is traversed with delicate and incomplete septa of fibrous tissue, and filled with all kinds of lymph-corpuscles. The vas efferens is formed in like manner by the reunion of minute twigs." On examining Peyer's glands, Brücke found great numbers of lymph-corpuscles, cytoblastsand cells, undistinguishable from the contents of ordinary lymphatic glands. It remained to trace, with the assistance of the microscope, the supposed connection of Peyer's glands with the lymphatic system. He found that many of these glandules presented, on their side next the peritoneum, a prolongation, ending in a delicate bundle of fibrous tissue, attached to the capsule of the gland. These bundles, after the addition of acetic acid, were seen to contain dark nuclei, similar to those observed in the glands themselves. No trace of a vessel was seen within the bundles, unless the fibres themselves were arranged so as to form a sort of tube. Brücke points out that similar bundles of fibres are connected with the villi, and argues that they must be the channels by which the lymph is conveyed from the villi to the trunks of the lymphatic system. Whether each bundle forms a conduit for the chyle, or whether the fluid insinuates itself betwen the individual fibres, drawing along with it the nucleated and fatty elements of the chyle, may admit of question. Brücke thinks that the whole so-called "submucous tissue" consists of these bundles and connecting fibres, with nothing in the shape of a vessel, except the blood passages.

He concludes his very interesting memoir as follows:—"It is ascertained, 1. That the chyle ducts may be injected through the glands of Peyer, and that observation of the course followed by the fluid injected proves that it passes in natural and not in forced channels. 2. That the cytoblasts which fill Peyer's glands are like those in the mesenteric glands; and during resorption form cells resembling the lymph-corpuscles. 3. That Peyer's glands are connected with thread-like structures, resembling those proceeding from the villi, and constituting the passages for the chyle; for in the submucous tissue nothing else which could serve such a purpose has been detected; and a system of vessels, proceeding from sources so numerous as the villi, and of course containing such a mass of fluid, could not have escaped observations such as have been recently made.

"The opinion which I pronounce, that Peyer's glands are lymphatic glands, situated in the wall of the intestine, and destined to elaborate the first organized elements of the chyle, may be erroneous; for almost all physiological conclusions, founded upon morphological investigations, attended with great difficulties. and not satisfying all conditions of inquiry, may lead to error; but I consider that the extent and the results of my inquiries have been such that I am entitled to submit an opinion, upon the correctness of which other observers may decide."—*Month. Journ. of Med. Sci.* Nov., 1850, from *Ueber den Bau und die Physiologische Bedeutung der Peyerischen Drüsen. Von Ernest Brücke. Wien*, 1850.

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4. *Of Repair and the Imperfections or Limitations of Cure.*—Dr. William Addison, in an interesting paper "On the Containing-texture of the Blood," makes the following important remarks relative to repair of injuries in the organism:—

"The characteristic pittings of small-pox, and the analogous marks which may be found remaining after a severe application of antimonial ointment to the skin, not only point out upon what texture the morbid action has been concentrated, but they indicate—as do the scars and seams of a burn—that the parenchyma of the glandulæ is not restored or reconstructed by the process of repair, which fills the void, not by restoring the destroyed or lost form, but with simple fibrous tissue. Pathological anatomy has long demonstrated analogous facts in the mucous membranes; and it appears from our observations in these and other examples of repair or cure, where an original or germ-form has been destroyed, that, with the original form and substance, *the principle* governing the natural distribution of the blood-vessels has also departed; for the arrangement or disposition of these in a scar or a cicatrix, in granulations and lymph, appears to us never to be the same as it was in the unimpaired original growth. Such being the facts, we have, in these instances at least, no evidence of a repetition or revival of the 'germ force.' On the contrary, we see only effects arising from those qualities of blood which, wherever blood extends, originate a limiting or bounding texture, a correlative of blood, the first phase of which is *corpuscular*, and the concluded form *fibrous*. These imperfections or limitations of cure in the skin may be of little consequence to the welfare of the person; but in mucous membranes and internal organs they become of much more importance: and allied to these in their consequences upon the general or constitutional health are the unnatural fibrous adhesions which very frequently attend the cure of severe inflammation on the free surfaces of fibrous membranes. But we have elsewhere spoken at length upon this part of our subject,* and are, therefore, content with the following summary:—

"The first phenomenon of repair is inflammation, cells, and cell-growth interpolating fibrous texture. The second phenomenon of repair is the cure of inflammation; natural fibrous forms abolish and exclude the cell-growth period. But there is often a pause between these two periods. Inflammation subsides, but cure does not advance: unnatural cell-growths maintain their footing, but they do not spread. *This is scrofulous disease*—a persistent form of retrograde metamorphosis.

"Finally, the human body, regarded *analytically*, is composed of three great systems of organs—sentient, motor, and secreting—nourished by the circulation of the blood, and sustained by the coherency of textures, correlatives of blood. In this point of view we have sought to determine the seat of inflammation, and to extricate its definitive phenomena from their complications with the elements and physiology of the parenchymatous substances. Desirable as this is on many grounds, particularly as interpreting pathological appearances, we must remember that analytical views are unsatisfactory in the practical treatment of disease; because, in the first place, such is the minuteness of the scale upon which different physiological substances commingle and are co-ordinated, that there are everywhere in the living structure, *and within microscopic areas*, elements of the common and of the specific: so that if disease fundamentally begin in the one, it affects the other before it can become an object of practical interest or regard: and in the second place, *synthetically* viewed, all the various elements of the living body are so mutually incorporated and interdependent, that the whole of them form but one person. Look at the relations between *sentient* and *motor* elements. Muscles act instantaneously upon the dictates of the will; but disturb sentient matter, and muscles are divorced from the dominion of the will; they remain quiescent, and waste away. Are not muscles, then, exquisitely sensitive? *Sentient* and *motor* elements are both incorporated with the simple fibres of the *fibrous tissues*, and immediately feel the influence of the first inroads of inflammation. In the deep interior of the brain *sentient elements* are brought into such close and mysterious relations with the *elements of blood*, that the ordinary form and character of the limiting tissue of the blood is dispensed with, a kind of embryonic type of circulation here prevailing. Blood and medullary matter seem in this instance to have nothing interposed between them. In the *secreting organs, and within micro-*

* Healthy and Diseased Structure, part ii., ch. 2.

scopic areas, multitudes of the *secreting cell-particles* are attached to the *containing texture of the blood;* and in the liver the same continuous relations are thought by the best anatomists to prevail between the *secreting elements* and the *venous blood*, as appear to exist in the brain between *sentient elements* and *arterial blood*. It is these synthetical relations which prove to us how dependent every part of the body is upon the circulation of blood, and deprive analytical investigations of the extensive influence which otherwise they must have had upon the art of therapeutics. In the embryo, *germ-masses* or groups of sentient, motor, and secreting elements are founded prior to the flowing of the blood current, but the growth of blood-vessels, of fibrous textures and bones, upon which the relations of forms and functions depend, is posterior to the circulation; and the healthy constitution of these textures hinges upon a normal metamorphosis of the elements of blood. Such being the facts, what, then, replenishes and maintains the circulating fluid?

"In answering this question, we enter upon another and a widely different sphere.

"Food, drink, and air, incorporate with blood. Here we pass from the department of the living body to the world of external nature: and it is to be observed that the elements of the one cannot be said to be *more necessary to the phenomena* of life and health than are those of the other; for the body dies as soon deprived of air as it does deprived of blood."—*Lond. Med. Gaz.*, Sept. 20th, 1850.

ORGANIC CHEMISTRY.

5. *On the Salts contained in Cholera Evacuations.* By Dr. Guterbock.—The following are the author's conclusions, drawn from the chemical examination of the stools in cholera:—

1. A most remarkable circumstance is the large proportion of water, amounting, on an average, to 98.119; while, according to Berzelius, normal stools contain 75.3. The specific gravity, too, is remarkably low, varying from 1006 to 1008; the urine itself, in but few diseases, manifesting so low a one. 2. The solid constituents amount on an average to but 1.581. 3. Among these, the inorganic *salts* constitute by far the largest portion—upon an average 4-5ths, the organic matter being only 1-5th—a proportion that is the reverse of the normal, in which the organic parts form 19-20ths according to Berzelius, and 9-10ths according to Rose. 4. Among these salts the most remarkable is the *chloride of sodium*, constituting, upon an average, nearly ½, and, in some cases, 2-3ds, of the whole. The cholera stools contain nearly ½ per cent. on an average, while, according to Berzelius, the normal proportion is but 0.28; and according to the latest analysis of solid excrement, by Rose and Fleitmann, this proportion is even unusually large, as in 100 parts of the entire salts, only 1-58th were chloride of sodium. Thus the cholera stools contain a hundred times as much salt as the normal; and, indeed, so considerable is the quantity that, after the evaporation of the fluid, the unassisted eye recognizes the characteristic crystals. 5. Next to this the *carbonate soda* is most abundant, and besides these are some phosphate of magnesia and lime, and a trace of the sulphate. The absence of *potass* in the stools is remarkable, forming, as it does, a chief saline constituent in the normal solid stools. According to Rose and Fleitmann, these contain 22.49 per cent., while in the cholera stool only a trace is detectible. 6. The organic matters of cholera stools consist in great part of mucus and the remains of epithelium, and it has generally been believed that they are rich in albumen. The experiments of the author and of Corenwinder contradict this, for they either found it entirely absent, or mere traces present. Masselot (*Gaz. Méd.*, *No.* 14, 1849) states that he found a considerable quantity; but as the stools were compared to soup in colour they probably contained blood—an important point to be borne in mind during investigations for albumen. In almost all cases a small quantity of casein is present, especially in stools removed after death. 7. The abdominal discharges were always alkaline, but the *vomits*

neutral, or slightly acid. These latter, too, contained a still larger proportion of water, viz., 99 per cent., and were little above the specific gravity of water. Upon an average, the salts constituted about a half of the solid matter, but the proportion between these and the organic constituents was not so constant as in the alvine evacuations. So also the proportion of chloride of sodium varied, but it never exceeded that of the other salts. No albumen was present. 8. The contents of the bowel thus appear to become changed in their passage, not only by the presence of broken epithelial scales, but also in chemical composition, being richer in organic constituents than when they have passed the anus. 9. It is to be expected that the increase of chloride of sodium in the stools is cotemporary with the diminution of the substance in the blood noticed by O'Shaugnessy, Rayer, and Mulder; but the cessation of the epidemic prevented Dr. Güterbock examining this point for himself. Supposing future researches to affirm it, it is only one step towards explaining an increase, which, compared with Rose's analysis of normal excrement, is a hundredfold. According to this chemist, a large portion of the chloride of sodium is excreted in the urine, almost 600 times as much as in the stools; and the arrest of the secretion of urine during cholera may explain the enormous increase in the stools.—*Brit. and For. Med.-Chir. Rev*, Oct. 1850, from *Poggendorf's Annalen*, Bd. lxxix.

6. *Influence of Salt Diet on the Composition of the Blood.*—Poggiale has examined the blood of man, both at the time that the usual diet was taken, and whilst 154 grs. of salt were consumed daily. The following are the results:—

	During usual diet.	During salt diet.
Water	779.9	767.6
Blood-corpuscles	130.1	143.0
Albumen	77.4	74.0
Fibrin	2.1	2.3
Fatty matters	1.1	1.3
Extractive and salts	9.3	11.8

From which it is evident that the proportion of solid constituents are increased; this occurs chiefly in the blood-corpuscles and extractive, the amount of albumen being slightly diminished.—*Compt. Rendus*, xxv.

Boussingault has also extended his observations concerning the influence of salt on the fattening of cattle. His earlier experiments had shown that salt does not exert that beneficial influence on the growth of cattle, and the production of flesh, which is usually ascribed to it. His present experiments have been extended over a period of thirteen months, and have been made on a number of steers, some of which had their rations salted, while the other had not; in other respects they were treated in a precisely similar manner. The results have shown that the increase in the proportion of flesh does not pay for the salt employed. Boussingault, however, remarks that a saline diet exerts a beneficial effect on the appearance and condition of the animals; for the steers which were deprived of salt for eleven months appeared sluggish, and of a languid temperament; their coats were rough, devoid of gloss, and partially bare: while those which had been fed with salt were lively, had a fine glossy coat, and were sure to obtain a considerable higher price at market.—*Brit. and For. Med.-Chirurg. Rev.*, from *Liebig's Report*, vol ii.

MATERIA MEDICA AND PHARMACY.

7. *On the Action of Bromide of Potassium.*—M. Huette has been induced, by reason of the analogy in composition which this substance offers to iodide of potassium, and by the recommendation by a few practitioners of its therapeutical employment, to try a series of experiments with it. These have resulted in complete disappointment; but during his investigation he discovered two effects producible by the bromide, which, if confirmed on farther trials, may

admit of useful application. One of these is the power it possesses, even when given in small doses, of inducing a state of *insensibility of the palate and pharynx*, which, commencing on the second day, continues during the whole course of treatment. It is so complete that the finger may be carried to the base of the tongue, touch the amygdalæ and posterior nares, or tickle the uvula, without inducing any effort at vomiting or deglutition whatever. This local anæsthesia seems deserving of investigation, as being preferable to that derivable from chloroform, when tedious and delicate operations about the mouth and throat are in question. Still other investigations are required; for, on the one hand, the insensibility might not subsist under the action of a cutting instrument, and on the other perhaps the glottis itself is involved in a like insensibility, and would not indicate the passage of blood into the trachea.

The bromide possesses also remarkable power in inducing *torpidity of the genital organs*. A patient tormented by a vivid imagination, and subject to frequent consequent pollutions, found himself quite freed from his infirmity after having taken 15 grains *per diem* for three days; while some patients to whom the drug was administered reproached the author with this effect, which however passes off in a few days after the discontinuance of the medicine. The medicine thus seems indicated in *chordee*, in relieving which camphor and opium so often fail, as also in certain forms of spermatorrhœa.—*Brit. and For. Med-Chir. Rev.*, Oct. 1850, from *Gazette Méd. de Paris*, No. 23.

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8. *On the Therapeutical Employment of Coffee and Cafeine.* By MM. Vanden-Corput and Hannon.—M. Vanden-Corput has recently published an article upon the febrifuge power of coffee, and especially its anti-neuralgic action, on which account it is now very much employed by the Belgian practitioners. Numerous therapeutical applications of this substance were made long since. Nebelius and Baglivi gave it in cephalalgia, Dufour prescribed it in phthisis and migraine. Willis employed it in narcotic poisoning; and Grindel and Dorpat as a febrifuge. Musgrave, Pringle, Monin, Percival, Laennec, and a great many others, have spoken of it approvingly in essential asthma. In Dutch Batavia it is used in strong infusion, with lemon-juice, in pernicious fevers; and the practice passing thence to Holland, has led to its being preferred there to quinine. Pouqueville declares it is infallible in the intermittents of the Morea; and Martin-Solon approves of its use in the adynamic form of typhoid. Dr. Guyot has recently strongly recommended it in pertussis. Besides medicinal properties, properly so called, it possesses the important one of disguising the taste of various substances, especially quinine, sulph. magnesia and senna; and if its antiperiodic virtues really exist, it will probably favour the action of quinine instead of impairing it, as has been feared by some. It possesses the power, too, of developing the action of *haschisch*, contradictory as this may seem to its generally acknowledged anti-narcotic properties.

With *Cafeine*, prepared according to Liebig's process, M. Vanden-Corput produces various compounds. Thus the *citrate*, which is very soluble in water, is formed by saturating pure cafeine in a solution of citric acid, and evaporating; or it may be procured by exhausting crude coffee with a very weak solution of citric acid, shaking the liquor with an equal volume of ether, decanting it, and leaving it to crystallize after concentration. Twelve grains are added to 450 grains of sugar, and the mixture given in doses of 12 grains. The *lactate* may be prepared by dissolving cafeine in dilute lactic acid and evaporating, or by treating the infusion of green coffee with lactate of lime, filtering and evaporating. It may be given in sugar. The *malate* may be prepared in an analogous manner, and administered as a syrup by dissolving 4 parts of the malate in 30 of orange-flower water, and adding to it 250 of simple syrup. Cafeine may also be given with *hydrochloric acid*, as in the following formula: Cafeine 7 grains, distilled water 1350 grains, strong hydrochloric acid 2 drops, syrup 255 grains. Dose. a tablespoonful.

M. Hannon speaks in the highest terms of the employment of the *citrate of cafeine* in *idiopathic migraine*. Ten grains are first made into as many pills, one of which is given every hour for some time before the paroxysm. The dose is gradually increased until relief is obtained; and in one case even half a

drachm at a time was given. The dose must, indeed, be large, in proportion to the obstinacy of the case and the length of time between the paroxysms. Large doses are also required in old, feeble, or cachetic patients; and in old cases the medicine must be long continued. It is desirable, when possible, to commence the medicine the evening before the expected paroxysm, when the entire quantity may be divided into several doses; but if it has been delayed until the commencement of the paroxysm, the whole quantity must then be given at once. The expected paroxysm may thus be entirely arrested or merely diminished in severity; but in all cases, save where the disease is sympathetic, it eventually yields.

While upon the subject of *migraine*, we may mention a still pleasanter remedy than coffee, suggested by M. Tavignot, viz., the making several *deep inspirations* in rapid succession. We must observe, however, that M. Tavignot does not understand by the term *migraine* simple neuralgia of the head, which many writers so designate; but the condition when this is accompanied by a state of physical and moral prostration, during which the blackest ideas assail the patient—the "blue devils," in fact, to which the English were once thought on the continent to be especially liable. During an attack of this, which from former experience he was led to believe would continue for twenty-four hours, he was induced by the hope that this condition of the nervous centres might result from a stasis of the blood in the sinuses of the brain, or from imperfect hematosis, to take several deep and rapid inspirations; and after a few efforts of this kind, he found himself completely relieved, and able to resume his occupations. Other persons, similarly affected, have been in like manner relieved; but those who have tried the plan in simple neuralgia have been disappointed.—*Brit. and For. Med.-Chirurg. Rev.*, Oct. 1850, from *Bulletin de Therap.*, vol. xxxviii.

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9. *A cheap and simple article of Nourishment for Infants—Carrot Juice.* By Dr. Gumprecht of Hamburg.—Being impressed with the consideration that the nature of the artificial nourishment of young children deprived of the breast has a most important effect on their health, the author was anxious to find some aliment more supportable by the tender organism of infants than cow's milk and amylaceous matters, which mostly tend to acidity. An observation of Schmidtmann, that the pulp of carrots is a favourite article of diet for young children in Turkey, and is much used there, led him to turn his attention to this substance, which, as is well known, from the analyses of Wackenröder and Liebig, is particularly rich in albumen and sugar. It contains, however, also a quantity of ligneous fibre (cellulose), which is indigestible, and may therefore prove injurious.

He therefore thought of employing the thickened juice of carrots in the following way: An ounce of finely-rasped carrot pulp is mixed with two cups of cold *soft* water, and left for twelve hours, during which it is occasionally stirred, then strained through a sieve, and the juice expressed from the pulp. This juice is then mixed with a sufficiency of bruised biscuit, or bruised crust of white bread, or a little arrowroot, a little sugar added, and the mixture heated, but not allowed to boil completely, so that the albuminous matter may not be coagulated. More sugar may be added if required.

The author considers the addition of biscuit or bread to be necessary, in order to furnish to the child all the requisite elements of nutrition—viz., albumen, starch, gluten, sugar, fat, and salts.

For sucklings deprived of the breast, the preparation is so far altered that the biscuit (1 part) is rubbed up with the carrot pulp (4 parts), then macerated and strained as above (we presume it is to be heated, though the author does not expressly say so). To this juice the requisite amount of sugar, and a little salt, are added, and the child fed with it from a sucking-bottle. Of course great cleanliness is requisite to prevent acidity being generated in the bottle, and for the same reason the juice, which readily undergoes fermentation, is to be kept in a very cool place, and prepared in small quantities at a time.

So far as the author's observations have gone, this system of nourishment has answered well, the children not only bearing it well, but taking the food

readily, and he has received assurances of similar success from several of his professional brethren.

It is further stated by him that for older children the carrot pulp may be mixed with animal broth, and that large carrots answer better for the preparation of the juice than those which are young and small.

From the want of any direct experience of the above method, we cannot as yet express a judgment on the above proposition; but we must admit that the manufacture of the food does not appear (as the author seems to think) so easy that we can always reckon on its being successfully prepared. The chances of fermentation in such a juice are so great that it is to be feared it will hardly be avoided. We should regard any tendency to laxity of the bowels—so common an affection of children—as a complete contra-indication to its use. Further, there seems to be no reason why, even for young infants, some animal matter should not be added, in the form of broth or yolk of egg.—*Schmidt's Jahrbücher*, from *Journ. für Kinderkrankheiten*, July and August 1849.

In the *Journal für Kinderkrankheiten* for March and April 1850, Dr. Gumprecht publishes letters from Dr. Müller, of Hamburg, Dr. Mauthner, of the Children's Hospital of Vienna, and Dr. Helmbrecht of Brunswick, who state that they have followed his plan with satisfactory results. The last-named physician, however, remarks that if arrowroot is used to thicken the juice, it must be boiled, else the arrowroot will not dissolve, and this has the effect of coagulating the albuminous matter, which the author wishes to avoid. Dr. Helmbrecht suggests salep—a substance which is little used in this country, but which, we believe, is unjustly neglected.—*Monthly Journ. Med. Sci.*, Nov. 1850.

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10. *On the Therapeutic Properties of Cedron.* By Dr. Cazentre.—The seeds of Cedron are employed, in Central America, as a remedy for the bites of serpents, for hydrophobia, and for intermittent fevers. The tree is of the size of an elm; it is of the family of cedars, and grows in the whole of Central America, but most abundantly in the neighbourhood of Carthagena. The seeds nearly resemble a large bean; they are inclosed in a matty, thick, ovoid drupe, of the size of a lemon. When fresh, these seeds contain an oily matter. The whitish farina which is obtained from them is extremely bitter; the bitterness is more lasting and disagreeable than that of sulphate of quinine. The following are the purposes to which they are applied.

1. Bites of Venomous Reptiles. The seeds of Cedron are the most powerful antidote known against the bites of the most dangerous serpents; the remedy is said to be infallible, if immediately applied. The natives of the country where it grows always carry some of it with them when they go into districts infested with reptiles; hence fatal accidents are seldom heard of, although bites must be frequent.

Mode of Administration. Three or four seeds are scraped and the farina is collected in a spoon, mixed with a little water or spirits, and immediately swallowed. Some of the powder, prepared in the same manner, is then applied to the wound, and covered with a piece of linen. The natives act more simply, by mixing up the grated seed, in the palm of the hand, with saliva, and swallowing it; they then immediately mix more, and apply it to the wound. A tincture, of rapid and certain effect, is also prepared by macerating the seeds in brandy. The first dose is often sufficient; but, generally, it must be repeated twice or three times, according to the severity of the bite, and the subtility of the poison introduced.

2. Intermittent Fever. Cedron is frequently employed, at Panama, for this affection; and, in some localities, it is the only remedy used. Dr. Cazentre has often heard persons speak of having been cured by it of ague, which had resisted quinine. He recommends an inquiry into the efficacy of Cedron as a substitute for cinchona.

3. Hydrophobia. Dr. Cazentre has been informed by persons that they had seen mad dogs cured by the administration of this remedy, and that a bitten animal would be preserved, if it were administered during the period of incubation. This subject Dr. Cazentre recommends to be also carefully investigated.—*Lond. Journ. Med.*, Nov. 1850, from *Journal des Connaiss. Med.-Chirurg.*, Oct. 1850.

11. *Hydro-Iodic Ether.*—It is now about twenty-five years since Gay-Lussac discovered hydro-iodic ether, yet this substance, though so volatile and rich in iodine, has never been employed medicinally. M. Huette thinks that it is a powerful remedy, and has performed numerous experiments for the purpose of determining its physiological effects. The mode of administration is simple. One or two scruples of the ether are introduced into a small bottle, and then covered with an extremely thin layer of water. The bottle is next applied to the nostril, and inspiration effected, the ether passing up through the aqueous covering. Fifteen or twenty inspirations are sufficient. Absorption takes place so rapidly that iodine may be discovered in the urine a quarter of an hour afterwards. The physiological effects are those of iodine in their highest degree; yet the author never experienced any other inconvenience, after numerous trials, than a slight coryza. It does not appear that M. Huette has made any clinical experiments with the hydro-iodic ether; but he has proved that it may be employed without any inconvenience, and analogy warrants us in recommending it to the notice of the physicians attached to the Brompton Hospital. (*Med. Times*, Sept. 14, 1850; abridged from *Gazette Médicale*, July 27.)

Mr. Nunneley's experiments on Hydro-iodic Ether (*Trans. of Prov. Assoc.* vol. xvi. pp. 204 and 315) suggest caution in the use of this substance. In eight experiments, six of the animals died; all, with one exception, some hours after the effects had apparently passed off, and even when insensibility had not been produced. Mr. Nunneley believes that, "whatever anæsthetic property it might possess, it never could be employed in practice." Additional experiments on the lower animals would be required before its administration to the human subject could be warranted.—*Lond. Journ. Med.*, Nov. 1850.

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12. *Preparation of Atropine by means of Chloroform.*—At a meeting of the Academy of Sciences of Paris, on 14th October, M. Bussy presented a communication from M. Rabourdin, druggist at Orleans, on the preparation of atropine by means of chloroform. The following is M. Rabourdin's process:—

Fresh belladonna, gathered when commencing to blossom, is bruised in a marble mortar, and the juice pressed out; the latter is then exposed to a temperature of from 176° to 194° Fahr., to coagulate the albumen, and filtered.

When the liquid is cold, four grammes (℥i) of caustic potash, and thirty grammes (℥vii and gr. xliij) of chloroform, are added to each litre (1¾ pint); the whole is shaken for a minute and then set aside. At the end of half an hour, the chloroform, charged with atropine, is deposited, having the appearance of a greenish oil; the supernatant liquid is decanted off, and replaced by a little water. The water is successively added, and removed, till it becomes clear; the chloroform solution is then received into a tubular retort, and distilled by a sand-bath until all the chloroform has passed into the receiver. The residue is then treated with a little water, acidulated with sulphuric acid, which dissolves the atropine, leaving a green, resinoid matter; the solution, when filtered, is colourless. To obtain the atropine pure, it is sufficient to add carbonate of potass, slightly in excess, to collect the precipitate, and to dissolve it in rectified alcohol, from which, by evaporation, beautiful groups of needles of atropine are deposited.

When the fresh plant cannot be obtained, well-prepared extract of belladonna may be employed. Thirty grammes of extract of belladonna, obtained from the purified juice of the plant, are dissolved in one hundred grammes of distilled water. The solution is filtered; and two grammes of caustic potash, and fifteen grammes of chloroform, are added. The remainder of the process is analogous to that already described.

M. Rabourdin believes this method applicable, in general, to substances containing organic alkalies. If it do not become an economical means of preparing these products, it will at least serve, in some cases, to determine their proportion in certain materials.—*Lond. Journ. Med.*, Nov., from *Gaz. Méd. de Paris*, Oct. 19th, 1850.

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13. *Cantharidal Ether, and some Vesicant Preparations of Cantharides.*—By leaving cantharides with a small quantity of sulphuric ether, a green liquid is

obtained, very rich in cantharidine, which easily combines with resins, fats, or collodion. M. Oettinger, of Munich, proposes to employ this, in various forms, for producing vesication.

Cantharidal Ether. This is formed by digesting one part of coarsely-powdered cantharides in two parts of sulphuric ether, for three days, and expressing. The ether is charged with cantharidine, with a green oil, and with a yellow wax-like matter. When applied to the skin with a camel's-hair brush, the cantharidal ether produces abundant blisters, in one or two hours in children, and in three or four hours in adults.

Cantharidal Taffetas and Paper. A double layer of aqueous solution of isinglass is spread on silk, or paper; when this is quite dry, the following is applied: Cantharidal ether, sulphuric ether, of each four parts; turpentine, colophony, of each one part. A brush dipped in this is passed over the prepared material twice, with a short interval between the applications, and always in the same direction. After twenty-four hours, a third layer is applied; and, at the end of a similar period, a fourth. After some days, a layer of isinglass is applied. At the time of application, a wet rag is passed over it to remove the gelatine.

Cantharidal Ointment. This is prepared with equal parts of cantharidal ether and of lard. It acts intensely on children, after being rubbed in two or three times, and being applied for two hours.

Cantharidal Collodion. M. Oettinger prepares this by mixing equal parts of cantharidal ether and collodion.—*Lond. Journ. Med.*, Nov. 1850, from *Bulletin Générale de Therapeutique*, 30 Sept. 1850.

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14. *Protection of Pills of Iodide of Iron from the Air.*—M. Blancard, in a memoir lately submitted to the Academy of Medicine in Paris, describes a process for the preservation of pills of iodine of iron, so as to prevent the iron from becoming peroxidized.

This process consists in covering the pills with a sort of varnish, made with an ethereal solution of balsam of Tolu, deprived of benzoic acid by digestion in water. The rationale of the process is founded on the volatility of ether, and on the insolubility in it of the substance which it is desired to protect.

The pills, thus prepared, are of a dark iron-gray, shining, and have no disagreeable smell or taste. When held in the mouth for some minutes, they give no evidence of the presence of a salt of iron. No iodine is disengaged. The commission, appointed by the Academy to report on the process, kept several hundreds in a bottle; the silver at the bottom of the stopper, which acted as a permanent test, had not changed colour at the end of several months. The pills contain a small excess of iron.

The commission reported favourably on M. Blancard's process; and it was resolved that his memoir should be published entire in the *Bulletin de l'Académie.*

M. Bouchardat suggested that the pills might be rendered difficult of solution in the stomach. This might, however, be an advantage when it was desired that a medicine should reach more distant parts of the alimentary canal without being modified.—*Lond. Journ. Med.*, Nov., from *Gaz. Méd. de Paris*, Aug. 17, 1850.

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15. *Neutral Citrate of Soda, a new Purgative suitable as a substitute for Saline Mineral Waters, the Citrate of Magnesia, Sulphate of Soda, of Potash, of Magnesia, &c.*—M. Guichon, a pharmaceutist of Lyons, has suggested the use of the neutral citrate of soda as a substitute for the citrate of magnesia, and as being but half as costly.

This salt is white, without odour, often very slightly acid; it effervesces slightly on exposure to the air; it crystallizes in six-sided pyramids; its chemical formula is $NaO, C_4H_4O_4$.

Acid	49
Acid of sodium	26
Water	25
	100

It is very easily preserved; an excess of acid diminishes very decidedly its purgative powers. Dr. Patton, chief physician to the hospital of Antiquaille of Lyons, has experimented with it both in the state of a neutral salt simply dissolved in water, or in a demulcent drink, and in the state of a neutral salt very slightly acidulated and sweetened. Young subjects are purged by it in the dose of 40 grammes, and adults in the dose of 55 grammes. These experiments, which have been repeated by many physicians of Lyons, show that this new purgative possesses equal powers with the citrate of magnesia, and is much less costly.—*Revue Médicale de Paris*, 31st May, 1850.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

16. *On the Mechanism of the Inflammatory Process.* By Ernest Brucke.—On the retardation, and ultimately cessation, of the circulation in the capillaries of an inflamed part, the blood-corpuscles are known to accumulate in, and at length to completely fill and obstruct them. This phenomenon constitutes one of the most interesting points in connection with inflammation, and various explanations of the *modus operandi* of its occurrence have been advanced. Drs. C. J. B. Williams and Addison have attributed the inflammatory stasis to the multiplication and accumulation of the colourless corpuscles of the blood in the implicated capillaries. The merit of contesting and refuting the accuracy of this observation belongs to Dr. Hughes Bennett. It is now no longer possible to deny that the greater or smaller proportion of these corpuscles to the mass of the blood is entirely independent of inflammatory action. But though the correctness of this observation has been disproved, there can be still no doubt that at least some of the changes connected with the process can, with the aid of the microscope, be perfectly well examined, and that thus facts may be established which must be taken into account in all reasoning on the subject.

Henle has given the weight of his name to a theory which ascribes the diminished rapidity of the circulation, in the early stage of inflammation, to a primary dilatation of the capillaries and small veins. Brücke opposes this view; he holds this dilatation to be passive, and the consequence of a primary contraction of the arterial twigs supplying the affected part. Thomson had already signalized contraction of the arteries as the earliest change in the development of inflammation, but Brücke has been the first to deduce from this contraction the subsequent phenomena of the process. He has shown that the contraction lasts for a much longer period than was previously supposed, viz., for hours; a statement of the correctness of which we have convinced ourselves. The substance of Brücke's memoir is as follows:—

"On touching with liquid ammonia the web of a frog's foot, expanded under the microscope, an acceleration of the circulation is the first effect witnessed. This depends, in all probability, on an increase of the heart's contractions—as the frog, by its movements and efforts to escape, evinces other distinct signs of pain and suffering. During the movements of the animal, the circulation frequently becomes suddenly slower, and then just as suddenly resumes its rapid rate, which, as may be easily understood, is occasioned by the temporary compression of large vascular trunks. In a short time the animal becomes quiet, and the first signs of the inflammatory process appear, the circulation in the capillaries and small veins is seen to be diminished in rapidity, and these vessels contain more blood-corpuscles than usual. These two phenomena continue increasing, until at length the circulation in a portion of the capillary system, and in the small veins originating in it, entirely ceases, and the vessels are dilated and turgid with highly coloured red blood-corpuscles, so densely crowded that the outline of the single corpuscles can but rarely be distinguished. On examining the arteries supplying the part affected by the stasis, their ultimate twigs are frequently found to be already full of blood-corpuscles, which

are slowly but continually accumulating and filling the artery higher and higher.

"With each contraction of the heart, the blood advances somewhat in the vessels, but on its dilatation again recedes. Now, as the blood-corpuscles are heavier than the liquor sanguinis, they are less affected by the slow retrograde movement than by the rapid impulse forwards, and fresh corpuscles are in this way, as may be easily followed by the eye, constantly added to those already arrested. On examining more closely the artery in which the oscillations are perceived, its upper portion is found to be considerably narrowed, so that a single branch filled with blood-corpuscles is frequently larger than the stem from which it, together with many other branches, arises; in fact, if the arteries are measured with the glass micrometer before the experiment, at the point where they pass from the toes into the web, it is easily proved that the inner diameter of the artery, which feeds the implicated portion of the capillary vessels, is diminished to the half, indeed to a third, or even to a fourth, of its original size during the development of the stasis. I have often observed this condition of the narrowing of the arteries, and of the oscillation in them, in a completed stasis of from four to five hours' standing.

"Dilatation of the capillaries to double their diameter, and more, as some authors maintain, never occurs during the development of the stasis; it is only found when the inflammation has already existed for some time. The formation of the stasis cannot be accounted for by the dilatation of the capillaries; their dilatation is so slight that it is altogether denied by some observers, and, according to my observations, does not amount, at least during the development of the stasis, to more than a fourth of their original diameter.

"As regards the primary contraction of the arteries, it cannot be the effect of the elasticity of the arterial walls, for this would only occasion it if the pressure, which the blood exerts on them from within, should cease, and among the phenomena of the stasis we find none which could have such a consequence. The diminution of the calibre of the arteries must, therefore, be due to their contractile fibres; the anomalous condition in which, owing to the stasis, their twigs are placed, might be assigned as the cause of it; but, if this anomalous condition can excite contractions in the arteries, there is no good reason why it should not also be primarily excited by the originally employed irritant. It now remains to be seen whether the phenomena of the stasis may not be accounted for by the contraction of the arteries.

"If fluid be driven into a ramifying tube, it is clear that, on the occurrence of contraction of the trunk, other circumstances remaining the same, the rapidity of the current in the ramifications must be diminished. On viewing the circulation under the microscope, it appears that, in the normal condition, the blood courses onwards, in the whole capillary network, at a tolerably uniform rate—it is only in isolated and somewhat large vessels, which, as transitions from the arteries to the veins, are found interwoven in the capillary net, that the current is somewhat more rapid, the reason of which is obvious. Now, if an artery contract, this regularity in the distribution of the current, corresponding to the normal condition, and to the normal calibre of the arteries, must be disturbed in its vicinity; and it thus becomes clear, that not only a local retardation of the circulation, but also a local stasis, and even altered direction of the current in some vessels, may be caused by the contraction of a small artery.

"On the retardation of the circulation, the phenomenon which first shows itself—in fact, simultaneously with it—is the accumulation of the blood-corpuscles in the slower flowing blood. The corpuscles are specifically heavier than the *liquor sanguinis*, and are only kept suspended by the motion of the blood; the torrent of the blood bears them along with it through the capillaries; and it is often seen how they must turn and bend themselves to pass through their narrow and tortuous channels. If a stream, which bears along with it a specifically heavier body, diminishes in rapidity, the celerity of the solid body not only diminishes absolutely in the direction of the stream, but also relatively to the medium rapidity of the current: the solid body will sink, arrive in the slower moved layers, then be stilled, rolled onwards by starts in the bed of the

stream, and at last remain stationary. On considering that fresh blood is continually added to the vessels concerned, and that with the diminution of the velocity of the circulation the average celerity of the blood-corpuscles no longer bears the same relation to the average celerity of the *liquor sanguinis* as in a more rapid current, it becomes evident that with the increasing slowness of the circulation the blood-corpuscles are multiplied in the vessels, until at length they completely fill them, form on their part an additional obstacle to the circulation, and annul the last remains of it. This phenomenon may be compared to that which is observed in rivers, which choke their original bed with the sand they carry with them, and are forced to seek new passages to the sea.

"Lastly, it remains to be shown how the dilatation of the vessels in which the blood stagnates is produced. As the pressure which the blood exerts on the walls of the vessels depends on the resistance which it has still to overcome, so, in the normal circulation, the pressure decreases rapidly from the small arteries to the capillaries, and from the latter to the veins; in those vessels, however, in which the blood-corpuscles have accumulated, the resistance is manifestly increased, and, if they are completely obstructed at any spot, then they form from this upwards a blind appendage to the afferent vessels, in which the pressure is as great as at that point of the vessel whence the last branch, in which the blood still flows, is given off.

"I do not mean to assert that I have proved that all cases of stasis result from a contraction of the arteries; I even believe that I am acquainted with some which originate from other causes: thus much only I believe I have shown—viz., that the phenomena of the stasis can, at least, be as well and as completely acounted for by the contraction of the small arterial twigs as by a primary dilatation of the small veins and of the capillaries. If the phenomena connected with the occurrence of the stasis can be explained by the contraction of the arteries, it appears to me, when contraction of the arteries as well as stasis is observed on the application of any irritant, to be the most natural conclusion to consider the occurrence of the former as the immediate consequence of the irritation, and as the cause of the remaining phenomena; because the contraction of the walls of the arteries, in consequence of irritation, belongs to the well-established facts of physiology, and dispenses with every hypothesis which would attribute the dilatation of the veins and capillaries to direct or reflex paralysis of the nerves of the vessels."

Brücke has placed beyond doubt the fact of the contraction of arteries in the frog in the first stage of inflammation, and the persistence of such contraction for a considerable period. The inference he has drawn respecting the influence of this condition on the development of the stasis and the dilatation of the capillaries, are in the highest degree worthy of consideration; and his memoir must be esteemed an important contribution to pathology. If a certain condition, proved to exist in the lower animals, influences the formation of the inflammatory stasis in them, we are driven to the conclusion that the same condition would necessarily not be without effect in the production of the same phenomena in man and the higher animals, though in them not equally susceptible of ocular demonstration.—*Monthly Journal Med. Sci.*, Nov. 1850.

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17. *Treatment of Typhoid Fever.*—M. Becquerel, Jr., has lately presented to the French Institute an important memoir on the Treatment of Typhoid Fever by sulphuret of mercury internally and frictions with mercurial ointment.

In the year 1847, M. Serres read at the Institut a series of papers on "The Nature and Treatment of Typhoid Fever," and proposed a new mode of treatment, which he considered likely to exercise a most beneficial influence on the progress and character of that disease. The mercurial treatment of M. Serres consisted in the internal use of the black sulphuret, in doses varying from twelve to sixty grains, and in frictions over the abdomen with common mercurial ointment, in quantities varying from half an ounce to one ounce daily.

This treatment was continued for ten or twelve days—even longer, until the prominent symptoms of the fever had given way.

Having been appointed to take charge of M. Serres' patients at La Pitie for

some time, M. Becquerel resolved on submitting the mercurial method to further experiment. He therefore made trial of it on fifteen patients affected with typhoid fever, abstaining, with some slight exceptions, from the use of any other remedy.

The black sulphuret of mercury was administered to each patient immediately on his admission; he began with thirty-two grains, in the form of pill or powder divided into five or six doses. If no improvement took place in two or three days, the dose was increased to forty-eight or even sixty-two grains. As soon as convalescence commenced, the remedy was discontinued. In no case was the salivation severe enough to render discontinuance of the mercury necessary.

The mercurial ointment was employed in the quantities recommended by M. Serres, being increased in such cases as demanded an increase of the sulphuret. Thus, with thirty-two grains of the sulphuret, sixteen scruples of mercurial ointment were employed in two frictions; and with sixty-four grains thirty scruples. In order to favour absorption, the abdomen was cleansed every day with soap.

The accessory remedies employed were—ice, Seltzer water, and lemonade as a drink; simple lavements, or, in cases of constipation, a laxative clyster.

In ataxic cases, of which four occurred, musk was administered as a stimulant to the extent of five or six grains a-day.

The following are the results of the practice: Fifteen patients, all labouring under typhoid fever in a severe form, were treated—ten men, five women. The men were aged, two, sixteen years; two, seventeen; two, eighteen; one, twenty; two, twenty-two; one, thirty-six years. The ages of the women were—fifteen, eighteen, twenty, and two of twenty-one years.

The male cases may be arranged as follow: Four labouring under the ordinary abdominal form; five presenting adynamic symptoms of a very severe nature; and one with ataxic fever, in which the delirium and agitation predominated.

Of the females, one was affected with the adynamic form; one with common typhoid fever; one with the ataxo-adynamic, and two with ataxic fever. Dating the commencement of the attack from the first appearance of a febrile movement, we find that two entered hospital on the second day; two on the fourth; seven on the fifth; three on the sixth; and one on the eighth day. The premonitory symptoms of headache, muscular depression, &c., had, besides, varied from three to twelve days before the regular febrile attack commenced.

The treatment was begun, in the fifteen cases, on the day after admission. The following were its principal effects:—

Febrile Movement.—The first few doses of the sulphuret, and a few frictions, diminished the heat and dryness of the skin, which in some cases became moist. The pulse, at the same time, constantly fell. It varied from eighty-four to one hundred and sixteen in the different cases, and in all the frequency was diminished by the third day.

Mouth.—The dry, rough condition of the tongue, and the blackness of the lips, never disappeared until salivation had set in. This latter occurred twelve times in the fifteen cases: it was absent twice; and in these two cases recovery was just as prompt as in the former. In the only fatal case, the tongue remained dry to the end of the disease. In every case but one, the salivation was slight; in the one excepted, the tongue and gums continued swollen for twelve days.

With respect to this effect, the following propositions appear to be established:—

1. In ordinary typhoid fever of moderate intensity, salivation occurs more quickly than in the other forms; it is more decided, and continues a little longer during the convalescence, of which it is usually the precursor.

2. In severer cases, the salivation occurs at a later period, and is less considerable; sometimes it takes place at the moment the febrile symptoms disappear, in other cases, a few days previously.

3. In the most dangerous cases it is very difficult to excite salivation, and,

until this takes place we have always to dread some accident. Great perseverance is therefore requisite.

4. Finally, in a few mild cases, salivation does not exist, the mercury appearing to master the disease in less doses than are necessary to stimulate the salivary glands.

Tympanitis.—In every case, except the fatal one, this symptom diminished with great rapidity, and that from the commencement of the treatment.

Bowels.—The mercury produced in two cases one or two fluid stools daily; in two others accompanied by constipation, it had no laxative effect, and lavements became necessary. In three cases of diarrhœa (five or six fluid stools a day), the looseness diminished in a remarkable manner as soon as the remedy was employed. In eight cases it had no effect whatever on the state of the bowels, neither augmenting nor diminishing the diarrhœa.

Rose Spots.—These spots, when situate on the abdomen, were invariably removed in twenty-four to thirty-six hours by the mercurial frictions; but they continued their course on the other parts to which mercury was not applied.

Delirium.—When this symptom was at all prominent (four cases), musk was given to the extent of five or six grains daily. Although so violent that the use of the straight-jacket had been necessary, these patients became calm in four or five days. As to the cough, chest symptoms and stupor, they followed the general course of the disease, and appear to have been modified in a secondary way only.

Duration of Treatment.—In four cases, the treatment was prolonged to seven days; in three cases, to eight days; in one, to nine days; in three, to ten days; in one, to twelve; in one, to fifteen; in one, to sixteen; in one, to seventeen days. The mean duration was, therefore, ten days.

The quantity of mercury employed was, on an average, twelve and a half scruples of the sulphuret, and two hundred scruples of mercurial ointment. The smallest quantity was seven scruples of the sulphuret, with one hundred and twelve scruples of ointment; the maximum, twenty-four scruples of the former and three hundred and sixty of the latter.

Duration of the Disease.—The mean duration of the disease in fifteen cases was sixteen days. In one case, the duration of the fever was twelve days; in two, thirteen days; in three, fourteen; in three, fifteen; in one, sixteen; in one, eighteen; in two, twenty days; in one, twenty-one days; and, in one, twenty-three.

From the above facts, M. Becquerel draws the following conclusions:—

The treatment of typhoid fever by the black sulphuret of mercury and mercurial frictions over the abdomen is attended by the most advantageous results. The effects are the more striking in proportion as the disease is treated at an early period. In fifteen cases, all of a severe nature, taken indiscriminately, only one death occurred, and that from perforation of the intestine. The duration of the disease also was unquestionably shortened by this method of treatment, for it varied from twelve to twenty-three days. The duration of the treatment varied from seven to seventeen days.

The following were the most remarkable effects of the remedy: Diminution of the force and frequency of the pulse, and of the heat of skin; *rapid and early disappearance of the typhoid eruption;* rapid removal, also, of the tympanitis; excitement in a great majority of the cases of salivation on the sixth to the thirteenth day, which is almost a certain sign that the treatment has succeeded and that the patient will recover. Combined with mercury, the musk was effectual in subduing rapidly the most severe ataxo-adynamic symptoms.—*Med. Times,* Nov. 2, 1850.

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18. *Treatment of Cardiac Dropsy.*—Dr. Alexander Kilgour, in an interesting paper on Disease of the Heart and the dropsy following, in the *Monthly Journal of Med. Sci.* (Sept. 1850), makes the following remarks on the treatment of the latter affection:—

"In the treatment of cardiac dropsy, every practitioner has his favourite remedy, taken from the class chiefly of diuretics or purgatives, or both. Of the former, I have found the following combination the most efficient. It pumps

the patient out, so to speak, sometimes in a few hours; and it often will do so in repeated attacks of the anasarca.

℞.—Infusi digitalis, ℥iv; acetatis potassæ, ʒij; spiritus ætheris nitrosi, ʒij; aquæ cassiæ, ʒiss. Capiat cochleare magnum quartâ quâque horâ.

At last there comes an attack in which this and other diuretics cease to act, and we must then fall back on purgatives. Of the latter, unquestionably the most powerful is elaterium. But there surely must be a very great diversity in the strength of this medicine. Some practitioners, from the days of Sydenham, and long before him, downwards, appear to have given it in the dose of two grains, or even more; but I have found a single pill, according to the following formula, generally very powerful:—

℞.—Elaterii, gr. j; extracti colocynthidis comp. ℈ij. ss; extracti hyoscyami, gr. xij. M. Divide in pilulas xij. Capiat unam nocte maneque.

The great objection to the elaterium is the intense sickness, even in this small dose, produced by it. Do the large doses produce less sickness than the smaller? It may be so; but, in the few instances in which I have tried large doses, the sickness was not less. Is there any mode by which this sickening property in this valuable medicine could be removed? The same effect was found by the ancients in the well-known and much-used, but undeservedly now almost discarded, hellebore; and for the sickness occasioned by it we find it recommended (*vide* "Oribasius," lib. viii. cap. v.) that, amongst other remedies, the patient should be entertained with a funny little story, or be tossed, like Sancho Panza, in a blanket.* Something more efficient than the former, and less disturbing than the latter, would be a desideratum.

It is the opinion of some that the elaterium acts as a diuretic, as well as a hydragogue cathartic. I remember, when in consultation with Dr. Adams, of Banchory, in a case of cardiac dropsy, having my attention called by him to a formula, where the elaterium was combined with a diuretic, which he had seen prescribed with very great success. I detected it at once as a formula given in Ferriar's valuable "Medical Histories." It acts most powerfully by stool and urine (being composed of several of the most powerful of the diuretics, along with the elaterium); but I always found it to cause much and violent sickness.

℞.—Extracti elaterii, gr. ij; spiritus ætheris nitrosi, ʒij; tincturæ scillæ, oxymeliis colchici, ää ʒss; syrupi rhamni, ʒi. M. Ft. Solutio. Capiat drachmam unam ex aquæ pauxillio, ter, quarterve in die.

The combination of a bitter purgative with a saline one composed of the vegetable alkali and a vegetable acid, is in my experience much more efficient than any single purgative, or than a bitter with a salt formed of a mineral acid. The old compound powder of jalap is a well-known instance of a mixture of this kind, and is still one of our best purgatives in all dropsies where this class of medicines may be suitable. Ferriar used, as did also Home, a combination of half an ounce of the bitartrate of potass with two grains of gamboge. The infusion of senna with bitartrate of potass is also an old-fashioned and valuable remedy; but the insolubility of the salt is an impediment to the efficiency of this formula. The senna infusion with tartrate of potass, or with the tartrate of potass and soda, is not liable to the same objection; and the advantage of the frequent use of this combination in cardiac disease having a tendency to dropsy, or in the dropsy itself attending that complaint, has been in my hands, and those of my brethren to whom I have recommended it, so unequivocal, that I can speak for it in the highest terms.

The preparations of mercury have proven, no doubt, very successful in the treatment of this form of dropsy, and consequently many practitioners give them a preference. Without wishing at all to detract from the merits of this most valuable agent, I must confess that, in chronic diseases of the heart, I have the same objection to it, and founded on the same grounds, as was that to the celebrated Dr. Fell, or, to use the more classic words of Martial—

* My learned friend, the translator of Hippocrates and Paulus Ægineta, writes, in a note, in his translation of the latter, "shaken in a garment;" but mine, I assert, is the more spirited version.

"Non amo te, Sabidi, nec possum dicere quare ;
Hoc tantum possum dicere, non amo te."

I do not like the mercury, and cannot speak from experience of its efficacy in cardiac dropsy.

There comes a time in the treatment of this complaint when not only diuretics in all forms, but even purgatives, cease to remove or even to keep in check the anasarca. And this brings me to speak of another mode of treatment, which often proves palliative for a time—viz., puncturing the lower extremities, and thereby draining off the fluid.

This is not a new mode of treating the disease, though it has at various times fallen into unmerited neglect, and perhaps at the present time more so than at any other. Freind, in his "Historia Medicinæ," refers to the passage in Ætius which treats of this method of curing dropsy. Ætius is quoting from Asclepiades, and says that "an incision is to be made in the internal part of the leg, about four fingers' breadth above the ankle, and that it is to be of the same depth as in venesection. A small quantity of blood flows first, and then there is a continuous discharge of water ; and, without inflammation, the wound remains open until the whole dropsy has run off, no internal medicine being used." Freind continues, "Ipsa operatio ab Hippocrate memoratur, et ab ejus temporibus usque ad hunc diem multo sæpe cum successu adhibita est. Aliam punctura, scilicet per acum, viam proponit Sylvius de la Boe, hanc a se primo excogitatam glorians ; quanquam evidens sit ea omnia ex hac descriptione desumpta esse, atque totidem verbis ab Avicenna expressa." And then he adds, "Verum haud sola hæc inventio recens dicitur, quam antiqui nobis medicinæ scriptores diserte tradiderint. Id autem omnibus in chirurgia vel minimum versatis constat, lanceolam longe præferendam esse cuivis acui, in aperiendis iis, quæ anasarcam comitantur tumoribus."—("Historia Medicinæ," p. 385 : Lond., 1733.) Mead commences his notice of the treatment of dropsy ("Monita," p. 130 : Lond., 1771) with an account of this operation. He directs an incision to be made two fingers' breadth above the ankle down to the cellular membrane, and no further ; and he orders the leg to be fomented with a decoction of emollient herbs, to which some spirits of wine and camphor have been added. He tells us that he has often found this mode of treatment, not only in this disease (anasarca), but also in ascites, of great service, and sometimes curative, the water running out for many days to an extent to exceed all belief. He carefully cautions us to support the patient's strength under a serous discharge from this or any other wound. He then gives a case, apparently hopeless, of anasarca, combined with ascites, where, by a wound made in this manner in each leg, followed by a combination of bitters, squills, and such purgatives as elaterium, calomel and jalap, the patient recovered, and died five years afterwards of another disease.

This method of treatment is also brought under our notice by Heberden, in his "Commentaries," but not with so flattering hopes of advantage. He says, "When these and other diuretics have failed, as is often the case, some have attempted to draw off the water by incisions in the legs, and even by cantharides' blisters applied to them ; and sometimes blisters take place spontaneously on the legs of dropsical persons. By these means," he continues, "I have seen not a small quantity of water drawn off, but never the disease cured ('morbum autem nunquam sanatum') ; but they gave a brief respite, and eased the patient a little." He then notices the great objection to this mode of treatment—the difficulty of healing, and the danger of these wounds—"Odiosum est quod hæc vulnuscula interdum fiunt ulcera sanatu difficilia, vel periculosa, quanquam bis aut ter quotidie pannis laneis ex aqua calida expressis foveantur. Fomenta hæc utilia sunt ad aquam copiosius evocandam."—("Commentarii," p. 191 : Londini, 1807.)

I have here quoted the opinions of these very practical men as a test, so far, of the value of the treatment by incisions and puncture. I have no hesitation in saying with both Mead and Heberden, that I have not only often seen it of great benefit to a patient labouring under anasarca, no matter what the pathological cause of that disease, but have also in some cases seen it prove a cure, or, at any rate, that, after recourse had to it, internal medicines, which previously

exerted no effect on the dropsical effusion, began to act, and the anasarca did not reappear.

I do not, however, recommend it until all internal remedies have failed. I never have recourse to it till it has become, to use Mead's expression, "unica spes salutis;" and I do not forget the qualification he makes, "et ea dubia." Still I am decidedly of opinion that, whether as a palliative or as a hope of cure, it deserves more notice than now-a-days it seems to me to get.

There are two modes, as stated above, in which the opening for draining off the fluid may be made—either a puncture with the lancet, or with a good stout sewing needle. From a single puncture by the latter, a quantity of water will sometimes run out so as to pass through the bed in a few hours, and require to be collected in vessels placed below it.

Heberden has evidently seen the danger attending this mode of treatment, though he does not say specifically in what it lies. He tells that the wounds are difficult to be healed, but that we need not fear. He also says they are "periculosa." Now, the danger consists in the inflammation of an erysipelatous character, that not unfrequently takes place, extending up the limb, sometimes bringing on *sphacelation*, and for the most part ending in the death of the patient. But if the medical attendant would be satisfied with one incision, and one, or at the most two, punctures, in the proper place, erysipelas is not so apt to occur. The state of the skin—its low vitality during the existence of the dropsy under it—is singularly favourable for this form of inflammation; but a small clean cut, or one or two punctures—and, if there be two, at a distance of not less than two inches from each other—is not so likely to be followed by this as when, in the anxiety to get the water all off speedily, several have been made. The writers whom I have quoted all recommend fomentations to be applied to the wound; but I have often found the evaporating lotion very successful in keeping down any disposition in the part to erysipelas. Frequent ablution, also, with tepid water, and the removal of any cloths that may be soaked with the serum that has run out, will serve to prevent, so far, any irritation from being set up in the skin.

When the operation, even with the needle, has to be often repeated, as is sometimes the case, for the ease of the patient, especially in cardiac dropsy, there is sometimes a degree of inflammatory action set up in the cellular tissue by which its interstices become obliterated, and the skin and it become quite closely adherent to the facia below. I remember this occurring in a gentleman, who had been kept alive for some months by punctures, and who was at last dropsical everywhere, except below the knees, where the adherent and thickened integuments would not distend—thus giving him, however, not a little pain. It has of late been recommended to have recourse to this treatment much earlier in the disease than was the custom with the old practitioners; and it has been said that the chances of success from it are much greater than when the patient's strength has been exhausted, and the vitality of the skin has been impaired by the long existence of a dropsical effusion. This reasoning is fair; but, whilst admitting it, one practical point may be mentioned, which is, that the fluid does not flow so freely from the incisions as when the areolar tissue has become more open and less resilient by the long existent pressure of the effused serum. And, little as the danger of erysipelatous attacks may be from puncture of the skin in the early stage of anasarca, still there are few that will subject the patient to this chance of danger until all the other more usual and often successful modes of treatment have been tried in vain.

As to another topical means of treatment in this disease—viz., the application of blisters to the anasarcous legs, with the view of draining off the serum—I would have scarcely thought it necessary to speak, believing that almost none, now-a-days, would adopt this practice; but lately I met a very intelligent country practitioner, who told me thathe occasionally had recourse to this application. Sydenham has condemned the practice, and branded it as a favourite application of empirics; and he states that "blisters entirely extinguish the natural heat, already almost overpowered by the water and deficiency of the animal spirits, and bring on a gangrene—too common in such cases." Sydenham's authority (and, by the way, he also condemns acupuncture) is great; but I have seen a

small vesicle, which had formed on one of the lower limbs, burst and drain off the whole serum from a person affected with extensive anasarca. The case alluded to is one of interest otherwise, though more properly suited to an article on renal dropsy. The patient, a lady, had the most albuminous urine I ever examined. Every remedy for dropsy had been tried by her medical attendant but mercury, and it was only left to me to suggest that, before the patient died, this medicine, which I had never seen more dangerous in this form of dropsy, as has been asserted by writers, than in any other, should be cautiously tried. This was done. Two days afterwards the vesicle above alluded to showed itself and burst, and our patient, much to our surprise, recovered, and is still in good health—seven years after the above attack. What nature does may not always be successful in the hands of art; and the exciting of a vesication by means of a blister is much more likely to be followed by dangerous than by curative effects in all anasarcous limbs, from whatever cause the dropsical effusion may have arisen.

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19. *Valvular Diseases of the Heart.*—Of all the organic diseases of the heart, the morbid conditions of the valves have been regarded as the most formidable. Robert Hunter Semple, M D., in an interesting paper in the *London Journal of Medicine*, thinks that he can prove that *valvular disease of a most formidable and extensive nature may exist for several years without compromising health to a serious extent, and without abridging the usual term of human existence.* He relates three cases, which he considers conclusive on this point, two of which we shall quote.

Case II. *Disease of the Mitral and Aortic Valves, apparently of long standing. Sudden death without any previous illness at sixty-nine years of age.* Mrs. K., æt. 69, was a lady of very active habits, of mild and benevolent disposition, temperate and abstemious, of rather tall stature and spare figure; she had always enjoyed good health, with the exception of an inflammatory attack about twelve years before the date of the present history, but the exact nature of the disease I had no means of ascertaining. Although intimately acquainted with her and her family for ten years previous to her death, and although I was the medical attendant of the family, I had never known her to complain of any illness. Since her death, however, I was informed that she suffered occasionally from slight attacks of dyspepsia, and also from difficulty of breathing and faintness, but the symptoms were very transient, and never required medical assistance. From personal knowledge, I can state that she was by no means a person of sedentary habits, as she was continually attending to the duties of a large house, and I met her walking in the street almost every day. On Monday, June 27, 1843, about four in the afternoon, I was requested to see her immediately, as she had fallen down in a fit, although she had been previously in perfect health. At the time of the attack she was standing in the kitchen, superintending the affairs of the family, when she suddenly fell down. As I lived at that time next door to her, I arrived immediately upon being summoned, and found her lying on the floor with a pale countenance and very feeble pulse, and quite insensible. I was wholly at a loss how to account for her condition, as I had never known her to be ill during my whole acquaintance with her. I succeeded, with assistance, in placing her upon a sofa. Mustard poultices were immediately applied to the feet, and spirits of hartshorn held to the nose, but we had scarcely laid her down, when she expired.

Post-mortem Examination forty hours after death.—There was lividity on many parts of the body, apparently from gravitation, the lividity being chiefly observable on the under surface. Very little fat beneath the skin. *Head.* The vessels of the scalp were somewhat congested. The skull presented no remarkable appearance. The dura mater was slightly adherent to the inner table of the skull on the left side. Some fluid blood was found lying between the skull and the dura mater. The arachnoid membrane was somewhat opaque, and there was a considerable quantity of thin serous fluid effused beneath it; the veins of the pia mater were congested, especially in the posterior part of the brain. The brain itself, with the exception of being a little softer than is usual in persons of the age of the deceased, was quite healthy; and the only appearances

worthy of notice were the effusion of some fluid and the congested state of the meningeal vessels above described. *Chest.* The lungs were quite healthy, with the exception of slight congestion. The heart appeared externally to be larger than usual, but not remarkably so. There was very little fluid in the pericardium. The right auricle and ventricle, with their valves, were perfectly healthy. The left auricle was also healthy. The mitral valves were thickened by a deposition of semi-cartilaginous substance. The parietes of the left ventricle were very much thickened, but the cavity was of the usual size. The aortic valves were found very much diseased, and on looking at them from above downwards from the aorta, they appeared completely to close the passage. They were found to be converted into masses of bone, which nearly filled up the valvular orifice, leaving only a small chink for the passage of the blood. These bony masses were rough and nodulated, and were deposited apparently within the sinuses of the valves, and one portion of great size extended from one of the valves down into the cavity of the ventricle. The lining membrane of the aorta also presented a great number of bony plates. *Abdomen.* The liver presented no remarkable appearance. The stomach was full, the deceased having eaten her dinner a short time before the fatal occurrence. The kidneys were congested, and their cortical substance presented a somewhat granular appearance.

In this case of remarkable disease of the valves, the patient had enjoyed almost uninterrupted good health, and was in much better health, indeed, than most persons at her age. Nor can it be said that her immunity from unpleasant symptoms, and the delay of the fatal termination, was owing to care on the part of her friends, or to the indulgence of rest; for she was a person of great activity, both of mind and body.

Case III. *Extensive disease of the aortic and mitral valves. Death at the age of eighty-three.* Grace Darton died on the 4th April, 1850, æt. 83. The history of the case was as follows: The patient was a thin, emaciated woman, of a pale complexion, and mild, submissive appearance, who had long been an inmate of the Islington Workhouse. I began to attend her in 1840, and had seen her from time to time since that period. She stated that she had had several attacks of rheumatism previously to my attending her, and that she had been bled three or four times for those attacks. She had not suffered from any of those symptoms which are usually considered among the prominent rational indications of heart-disease; such as swelled legs, palpitation, shortness of breath, etc.; and although she came into the infirmary at various times, for several ailments, it was never on account of any cardiac symptoms: and it was only by auscultation that I became aware that she had any affection of the heart. In fact, I was disbelieved as to the existence of any serious disease in her heart; and although I frequently recommended that she should be kept in the infirmary, and be constantly under medical superintendence, my recommendations were disregarded.

In the year 1840 (æt. 73), she had an attack of diarrhœa in March, which readily yielded to medicines. In August, she had an attack of chronic rheumatism, for which she was ordered a dose of calomel and jalap, and a purgative mixture: under this treatment she recovered, and was reported cured on the 11th of September.

Feb. 8, 1841. She had an attack of influenza; for which she was ordered a mixture, consisting of tinct. hyoscyami ℥ij; sulph. magn. ℥ss; inf. sennæ, aq. menth. āā. ℥iij. During this attack she had some dyspeptic symptoms, for which she took carb. of magnesia, with sulph. of magnesia, and aqua menthæ. She was reported cured on Feb. 20.

January, 1842. She was seized with an attack of catarrh, for which she was treated with mild purgatives; but an attack of chronic bronchitis supervened, for which a blister was applied to the chest, and she was ordered to take gr. xij of ipecacuan. immediately, and afterwards to take the following: ℞. Vin. ipecac. ℥iij; sulph. mag. ℥ij; inf. sennæ ℥vj. Sumat coch. ij magna 4tis horis. During this attack, the state of the heart and lungs was particularly examined, when it was found that, besides mucous, sibilant, and sonorous rattles over the lungs, there was a loud rasp sound over the region of the heart. This sound

was very loud, and much prolonged, taking the place of the first natural sound, and almost obscuring the second. This sound was heard most loudly over the base of the heart, and extended over the region of the arch of the aorta, and the right side of the neck. The impulse of the heart was not stronger than natural; pulse 80, regular. I should here notice that the pulse was always regular, and feeble, whenever I examined it. The treatment was directed, in the first place, to the relief of the bronchitic symptoms, which were removed by the measures indicated above, and by others of the same nature; and on the 4th of Feb. 1842, the expectoration had diminished, and the râles had disappeared. The rasp sound, however, still remained as loud as ever, and I was convinced that the woman had confirmed and serious disease of the aortic valves. I thenceforward, therefore, always adopted a somewhat tonic method of treatment; recommending vegetable tonics, with light nutritious diet, and avoidance of exertion.

May 30, 1842. She had an attack of lumbago. A mixture was thus prescribed:—℞. Vin. colch. ʒij; inf. gent. co. ℥vj. Sum. coch. ij magnæ 4tis horis. Under this treatment she was again reported cured. On the 19th of October, 1842, she had an attack of English cholera, which was successfully treated by carbonate of magnesia, and sulphate of magnesia in peppermint-water. On the 2d of July, 1843, she had an attack of common fever, from which she suffered for a week, but eventually recovered, by the use of febrifuge medicines and diluent drinks.

Sept. 8, 1845. She had a cutaneous eruption, attended with great itching, which I determined to be *prurigo senilis*. This was treated by mild aperients.

June 12, 1846. She had another cutaneous affection, attended with itching, which I regarded as lichen, and for which I ordered her twenty minims of liq. potassæ, in one ounce of compound infusion of gentian, three times a-day. This treatment was continued till the 17th of June, and the eruption disappeared.

Oct. 5, 1846. She now complained of faintness, nausea, want of appetite, and a disagreeable taste in her mouth. She said that she had lately suffered from palpitation of the heart and difficulty of breathing, when she exerted herself. She passed her water freely; never spat any blood; and had no swelling of the legs; bowels open, tongue clean, no thirst, pulse 58, quite regular, and weak. *Physical Signs.* The impulse of the heart was not increased, but the loud, sawing murmur was heard over the base, completely superseding the first sound, and was much prolonged; but a second, though much shorter murmur, was heard after it. Towards the apex of the heart, this murmur was also heard, but not so distinctly; it was distinctly heard over the region of the arch of the aorta, and over the right carotid artery. The diagnosis was still, of course, that the chief disease lay in the aortic valves. She was directed to take a moderate diet, consisting of mutton-broth, bread, milk, and tea; and to take the following medicine: ℞. Acidi sulphurici diluti, ♏v; inf. gent. co. ʒj. Quartis horis sumend.

Oct. 7. Much the same; dyspeptic symptoms remain; she complains of great faintness. She was ordered, in addition to the above treatment, to half-a-pint of porter daily, and to remain in the infirmary.

From that time, until very lately, I had not many opportunities of seeing this woman; and I heard that she died (without manifesting any particular symptoms beyond those resulting from her great age) on the 4th of April, 1850, aged eighty-three.

Post-Mortem Examination thirty-six hours after death. The body was emaciated; the legs were slightly œdematous; right side dull on percussion. *Head.* Scalp natural; cranium very thick, especially at its posterior part; sutures all obliterated; dura mater healthy, very firm, and dense: arachnoid membrane of a pearly, opalescent appearance, due to the presence of serum below its surface, which escaped on making an incision. The brain itself was moderately healthy; no softening, nor extravasation, in any part; arteries of the brain rigid and patent, owing to osseous and cartilaginous deposition—this was especially the case in the ophthalmic, vertebral, and internal carotid arteries: very little fluid in the ventricles. *Chest.* Left lung appeared of its natural colour and consistence; right pleural cavity contained a large quantity of fluid. About ℥xx of serous fluid were removed from this part; and in the

fluid there was a large mass of coagulable lymph, very soft, and of the consistence of thin jelly. Right lung healthy, and crepitant at the apex; but below, the texture was of a very dark colour, friable, and heavy, so that it sank in water. On cutting into this portion of the lung, it was found very much congested, did not crepitate, and, on squeezing it, a bloody serosity flowed out. On this side, therefore, there was acute pleuro-pneumonia, which was probably the immediate cause of the woman's death. The heart, seen *in situ*, occupied its natural position, and the apex was placed between the fifth and sixth rib. After removing the lung on each side, the heart, with the arch of the aorta, the innominata, the left subclavian and carotid, and the whole of the thoracic aorta, were all carefully dissected out, and removed together. The right auricle was natural; the tricuspid valves were patent, and admitted three fingers; but the attached margins were rather hard, and thickened. The semilunar pulmonary valves were natural; but the orifice was somewhat contracted. The left auricle was natural; the mitral valves admitted two fingers, but they were thickened and hardened, and contained a considerable quantity of osseous matter; the walls of the left ventricle were rather thickened, but not very considerably. The aortic valves were completely rigid, and converted into bone; and they met in the centre, leaving only a small chink at their juncture in the middle line. Looked at from above, the valves were seen stretched across the aorta, and each of the valves contained, in its sinus, a large mass of bony deposit. The ascending and transverse aorta were very much dilated, being, at least, twice their natural diameter; the innominata was also very much dilated. The lining membrane of all these parts was most extensively diseased, part being converted into atheromatous matter, part exhibiting numerous plates of bone, and part being ulcerated. These appearances were found in many other arteries—not only in the cerebral arteries already described, but also in the subclavians and carotids. *Abdomen.* Liver congested, of very dark colour, and friable; spleen very small, congested; kidneys small, but not apparently diseased.

This, then, was a case of extensive valvular disease of the heart, in a patient who suffered hardly any of the rational cardiac symptoms, but who was attended, at different periods, for various ailments, as diarrhœa, chronic rheumatism, catarrh, chronic bronchitis, lumbago, prurigo senilis, dyspepsia, and, finally, died at the advanced age of eighty-three, of an acute attack of pleuro-pneumonia.

These cases Dr. Semple regards as of great value. "In the first place," he says, "if it can be proved that actual organic disease of the valves of the heart may exist for a considerable period, and without shortening the average duration of life, such a conclusion may tend to divest this class of maladies of some part of the terror which their existence now so commonly inspires: and a patient, who is unfortunately labouring under a disease of this description, may nevertheless be encouraged by the reflection that a disease of the heart, although of a decidedly serious character, may not prematurely put a stop to his career. And if such be the consolation which may, I think, fairly be afforded to those suffering under confirmed and extensive disease, how much more applicable is it to those who are affected only by some of those minor affections of the heart and its valves, which occur so frequently among the sequelæ of rheumatism?

"In the second place, the subject is one of great importance in its relation to the average duration of human life, and the practice of life insurance. The existence of any disease of the heart is, I believe, an insurmountable barrier to effecting a policy of insurance; but I think it probable that in proportion to the accumulation of facts bearing upon the subject, the deductions drawn only from the physical exploration of the heart will not be so exclusively regarded as they have been of late years. But upon this point I wish to be understood as offering a very guarded opinion: for I have no wish whatever to undervalue the importance of the information derived from auscultation; nor do I pretend to assert that the existence of cardiac disease is a matter of slight moment. All I presume to argue is, that cardiac disease, even of a very decided and extensive character, *may* be compatible with long life and with moderate health."

Notwithstanding these opinions, Dr. Semple regards the *treatment* of valvular disease of the heart to deserve the closest attention, and the most zealous ap-

plication of the resources of our art. It is essential that the disease should be checked if possible at its *commencement.* "In the early stage," he says, "of valvular disease, the stethoscope is invaluable; it gives us the earliest intimation of its existence, and we are supplied with means for its repression. The patient suffering under the agonies of articular rheumatism is often unconscious of the mischief going on at the fountain-head of life; the stethoscope reveals the latent evil—vegetations of albumino-fibrine are encrusting the surface of the valves—but the judicious administration of mercury causes the absorption of the peccant lymph, and the channel of the blood is restored. And even when the disease of the valves is unfortunately confirmed, medical appliances may do essential service in alleviating the sufferings which often ensue, and in delaying or averting the fatal catastrophe. The palliative measures which ought then to be adopted, it is almost unnecessary to insist upon. The injunction of the necessity of rest, both mind and body, will be frequently repeated; and the state of the digestive system will, of course, form a prominent subject of inquiry and of treatment. The use of digitalis, which I believe to be of the utmost value in some of the organic diseases of the heart, is, I think, contraindicated in most cases of vulvular disease, in which the current of the blood is diminished, and the vital energies consequently impaired; in such instances, digitalis must undoubtedly do more harm than good, by lowering the force of the heart, and still further enfeebling the circulation. In such cases, it is better to rely upon those measures which are calculated to strengthen the system, and to stimulate the heart to propel the blood through its diminished channel; and I adopt a somewhat tonic system of treatment under such circumstances, as the best calculated to counteract the effects of the valvular obstruction."

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20. *Epidemic Cholera.*—Dr. P. H. Williams, in a report on cholera made to the Provincial Medical and Surgical Association, gives a very candid statement of the results of his investigations relative to this remarkable disease.

"It might fairly be expected," he remarks, "that a considerable amount of practical instructions would be supplied by a pathological report founded on the combined experience of the members of the Provincial Medical and Surgical Association, and yet it is a painful duty to record the fact that, with regard to the nature, history, treatment, and prevention of the disease which has formed the subject of this inquiry, very little new information has been gleaned."

As regards the results of post-mortem examinations, he states that "the only important information derived from them, in addition to what was previously well known, is the fact that the state of the intestines was such as must have rendered *any* mode of *treatment* inefficient. They are described as being 'either filled with a gruelly fluid, or else coated with a tenacious pasty layer of mucus.' Under such circumstances, it would be scarcely possible for any medicines to come in contact with the mucous membrane, so as to operate locally, or by absorption. They would probably glide rapidly through the alimentary canal, without producing the least effect."

In respect to treatment, he says, "It is almost needless to assert, for every one is already acquainted with the truth, that nearly everything both in and out of the Pharmacopœia was tried, and in some cases nearly all the preparations that could be shaken in a bottle or beaten in a mortar were *combined* for the purpose of counter-poisoning, if possible, the unhappy victims. The peculiar condition of the intestinal membrane, already adverted to, must certainly have been the cause of immunity from the effect of poisonous doses when administered, as it was also the cause of no benefit arising from the introduction of sanitary medicines.

"According to the evidence submitted for consideration *every* method was successful, and *every* method failed. Venesection and brandy; croton oil and gallic acid; opium and ammonia; sulphate of magnesia and acetate of lead; capsicum and ice; calomel and strychnia; scammony and starch; antimony and quinine; blisters and cider; nitrate of silver and gruel; venous transfusion and cupping; gallons of salines, and total abstinence from fluids; carbon and

oxygen; hot fomentations and cold sheets; in short, *every* thing and nothing has been *in*valuable.

"What deduction must be drawn from such a chaos, when the average mortality under every system was nearly similar! What is to be stated as established, when we find a most intelligent practitioner losing fourteen out of sixteen cases, in spite of every exertion that science and industry could make, and another gentleman assuring us that out of *two hundred* cases of *premonitory* diarrhœa he only lost a single patient? The only conclusion that can be justified by reason, must be this—That there are *many* cases, especially at the commencement of choleric visitations, in which the poison is so virulent that *nothing* can resist its withering influence, and the prostration so complete that *nothing* can restore the stricken energies. That there are other cases in which the poison, being of a less malignant character, and it may be the constitution of the patients less yielding, the disease, if treated at the first onset by *any judicious* method, may be effectually checked. And that there is a third class of cases in which early treatment does not prevent the progress of the malady; it may be said to run its course even to the access of apparent death, and yet from that stage the patient *may* gradually recover, and return as it were from the very threshold of the grave.

"We have thus *three* distinct divisions before us, in one or other of which the majority of cases may be arranged. It is clear that the fatal cases must belong either to the first or third division—*i. e.*, death must occur at an early period before medicines have had time to combat with the enemy, or at a later period when the disease has steadily progressed in defiance of persevering treatment. It should be remembered that in about *half* the cases in 1849 death *did* occur notwithstanding all our efforts; and it will probably be admitted, with regard to the *first* class of cases, that no means with which we are acquainted *could* have saved the victims from destruction. In the third class some patients are to be found who did recover from a state of extreme collapse—patients in whom *every* symptom of cholera was manifested, and who only just escaped in time to live.

"It is with reference to these persons that the greatest difficulty arises; for if no treatment could produce the least impression on the disease till the whole train of consequences, with the exception of actual death, had been fully developed, and then, at the precise moment when the last breath had apparently been drawn, a favourable change began under the most opposite systems of medication, how can it be fairly concluded that the change was owing to any circumstances, except the single fact that the virus was *exhausted*, and the patient had strength to *struggle* back to life? There is no satisfactory evidence that in the worst description of cases one method of treatment was decidedly better than another; nor is there satisfactory evidence that the recoveries which were witnessed under *those* circumstances were attributable to *any* treatment whatever.

"We now come to the *second* or medium class of cases mentioned, viz., those which were amenable to remedies at a comparatively early stage of the disease —those cases in which actual collapse did not supervene. *Why* did it not supervene? If a physician were called upon to attend a hundred patients who had swallowed the same specific poison, and he applied, experimentally, a different medicine to each, and fifty sank into collapse, and the other fifty did *not* do so, what would be his inference? Surely that they who *did not* had either taken a *smaller* dose, or a *weaker* preparation, or had *stronger constitutions*. Our inference with regard to cholera must be analogous.

"We conclude that in the restorations from collapse *no* medicine was efficacious, and we must now conclude that in cases which were free from collapse, *all* medicines were efficacious. And why? Because the dose of poison was smaller, the preparation weaker, or the constitution stronger. Upon this supposition, and upon this alone, the conflicting testimony as to successful treatment can be explained. Calomel, in small doses, might restore the arrested secretions. Purgatives might carry off deleterious elements. Opium and astringents might prevent a further exudation. Antimony might relieve the mucous surfaces by acting on the cutaneous capillaries. Blisters, cataplasms, and fomentations,

might produce a similar effect. The abstraction of blood might relieve the inflammatory tendency which was in many cases noticed. And, in others, stimulants might help the system to maintain its energy until the primary mischief was removed. So that, whatever plan be pursued in a *certain class* of cases, intelligible relief may be obtained, because *each* plan is capable of producing some effect; and it appears to be of little consequence in which way the benefit is conferred.

"It should be stated that the administration of calomel and opium, in small doses and at short intervals, appears to have been the *favourite* practice; but there is abundant evidence to prove its failure, and also to prove that in cases as malignant as any which ended favourably under that plan, recovery also ensued without a grain of either being used during any stage of the disease. Two authentic cases are reported in which the only treatment was *cider, ad libitum*. One of these patients was quite pulseless when the cider was prescribed—*both recovered!* The saline treatment does not seem to have been generally tried, although it was found to be successful in the hands of several careful observers."—*Provincial Med. and Surg. Journ.* Sept. 18th, 1850.

21. *Epidemic Mumps at Geneva and Montpellier.* By MM. Rilliet and Ressiguier.—M. Rilliet, one of the authors of the well known classical work upon the "Diseases of Children," now settled at *Geneva*, has published a very interesting account of an epidemic visitation of mumps, which prevailed there from March 1848 to May 1849, Dr. Lombard having assisted him in the acquisition of many of the facts. Still the exact number of cases could not be ascertained.

In the great majority of cases there were no premonitory symptoms, those of a local character being the first intimation of illness the patient received. We need not detail these. The tumefaction of the parotidean and mastoidean regions continued increasing from four to six days, and, after remaining stationary, then rapidly diminished, so as to have disappeared by from the seventh to the tenth day—the submaxillary gland continuing hard and swollen, in several cases, long after the resolution of the parotidean tumour. The most frequent cases were those in which the tumefaction was of medium size only; but in some it was enormous, extending almost to the external extremity of the clavicle. In such, and in subjects predisposed to neuralgia, the pain was severe and even violent, but in the other cases moderate—it being usually spontaneous, but also augmented by pressure and every movement of the jaw, which, indeed, was sometimes almost as immovable as in tetanus. In some cases, when the mouth could be sufficiently opened to allow the tongue to pass, the patients were unable to protrude it. In no case did Dr. Rilliet or any of his colleagues witness salivation, nor, when examination of the mouth and fauces was practicable, could any exanthema be observed. The swelling was usually double, but rarely so at first, commencing usually on the left side, and then proceeding, in a period varying from twelve hours to three or four days, to the opposite side, one gland being almost always more swollen than the other.

The accompanying constitutional irritation was not prolonged beyond forty-eight hours, save in very bad cases. A feeling of great lassitude and debility, accompanied or followed the appearance of the swelling, several patients not recovering their ordinary strength for two or three weeks. The cure was always more prompt and complete in children. The duration of the disease, in slight cases, and in children, was but four or five days; but, in other cases, usually eight or ten; then six or seven, and, lastly, seven to eight days. In some it continued even to the fifteenth day. Authors speak of this disease terminating by *suppuration;* but no example of this occurred. It is very rare for the disease to attack children under two years of age, and no example occurred under one. So, too, after forty, cases were very rare. The maximum number occurred between five and fifteen. The two sexes were affected nearly alike.

M. Rilliet believes the disease to be analogous in its nature to *eruptive fevers, and to be contagious.* The period of incubation is as difficult of determination as in other fevers; but both the author and M. Lombard believe that it is most often found to be from twenty to twenty-two days, and then from four-

teen to eighteen days. Still, in one of the best-marked cases it did not exceed eight days. In families, the disease usually appeared successively, not simultaneously. The experience of the author and his colleagues is favourable to the non-recurrence of the disease, attacks at former periods of life exerting a marked preservative power. Like other febrile diseases, too, this has occurred as an epidemic—so considerable a one not having been observed at Geneva in the memory of man, the number affected being, as in measles, proportioned to the length of interval between the visitations. It prevailed equally in warm and cold weather, during its continuance. During its prevalence various other diseases were observed; but roseola was especially so during its height, not the simple summer roseola, but an eruption very analogous to rubeola.

The treatment of the disease was very simple, frictions with anodyne substances being especially resorted to when the pain was great. Blood-letting was never required, but stimulating pediluvia were employed as revulsives. In children, in whom the digestive organs were usually disordered, emetics were found useful, and almost always slight aperients were given during convalescence. In some cases, tonics were eventually required, as were anodynes when the pains were urgent.

The only complication which the author has had frequent opportunity of observing, has been *orchitis or engorgement of the testis.* He met with but one case of tumefaction of the labia. The orchitis did not usually commence with severe pains, and the patients have been surprised at discovering the amount of swelling. This usually reached its height in from four to six days, diminished on the sixth or seventh, and had disappeared in from eight to fifteen. At the commencement the scrotum was not œdematous, and the testis rather than the epididymis was attacked with the swelling, which never acquired the hardness of blenorrhagic orchitis. In slight cases, the testis was half as large again as natural, but in severer cases its volume became doubled or even quadrupled. When the epididymis was affected, it was to a less extent than the testis, and was much indurated only in one case. The cord was almost always normal, but sometimes a little enlarged. Sometimes, on from the third to the twelfth day, the scrotum also became swollen, with or without redness, the swelling, sometimes considerable, being œdematous; and when the scrotum was implicated, both the swelling and pain were much greater than when the testis alone was affected. It was in these cases that general febrile symptoms were most marked. When the orchitis was cured, the testis in general returned to its normal condition; becoming, however, in some cases atrophied.

The orchitis usually appeared the sixth or eighth day, very rarely from the third to the fifth, and the parotid swelling had almost always much diminished; but no case of *metastasis*, properly so called, was observed, nor any example in which the orchitis suddenly disappeared, and the parotitis re-appeared. While the parotitis was oftener double, the orchitis was oftenest unilateral; and orchitis on the right side was observed in thirteen out of twenty-three cases, and in four it was double. In two cases there was orchitis without parotitis. The greatest number of persons attacked by orchitis were between twenty-three and thirty-eight years of age—the youngest being fourteen, the eldest forty-five. Most examples occurred in the lower class of patients, and the complication especially prevailed in January—twice as many cases then occurring as in all the other months together. The treatment of the orchitis was very simple, as by linseed poultices, fomentations, goulard water when the scrotum was œdematous, &c. Sometimes an emetic was given, and in three cases blood was abstracted.

M. Ressiguier supplies a much less exact account of the epidemic which prevailed at *Montpellier.* It was first observed in February, 1848, and by April its epidemic character had become evident. In this month, the metastatic symptoms were first observed. It became less frequent in June, and sporadic cases were alone observed in July. The swelling usually took on the characters of active œdema rather than inflammation, but in several cases it required leeching. When both sides were affected, they were almost always so successively, the left usually taking the precedence. The accompanying fever usually abated when the tumour was completely developed; but, in other cases, con-

tinued during the entire duration of the case, and was attended by exacerbations. In most cases the œdematous engorgement was dissipated in five or six days, but in others required double the time. It never terminated by suppuration.

In some cases, as the parotid tumour diminished, orchitis showed itself, and between March and June none of the patients were secure from this. In the present epidemic, while the parotitis was as yet unaccompanied by orchitis, a young man became the subject of this without having had any parotid affection whatever; and Groffier, who has left an account of a prior epidemic in this town, in 1806, relates the case of a man in whom, after the disappearance of an orchitis, the parotitis became developed. A similar case also occurred on the person of a soldier during the present epidemic; and in other patients the two affections appeared simultaneously. In the majority of cases orchitis showed itself on the opposite side to the parotitis, and only in one case was it double, though this was of frequent occurrence in the parotitis. The present epidemic confirms the statement of Laghi, that the so-called metastasis is never seen before puberty, and very rarely in the aged.

The present epidemic, like former ones in 1757 and 1799, especially attacked the soldiers in garrison.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1850, from *Gaz. Méd. de Paris*, 1850.

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22. *The Bronchocele of New-born Infants.*—Dr. Betz, of Tübingen, has published an interesting essay upon this subject. He attributes the silence of authors respecting it rather to their having overlooked the affection than to its rarity. Such children are usually stout and full-blooded, and the enlarged thyroid may be mistaken for a mere fold of fatty integument. In some, the neck seems merely too broad, while in others it undergoes no change; these differences depending upon the part of the gland engaged.

Immediately or very soon after birth, a marked difficulty of respiration comes on, which may prove fatal in a few hours, or in two or three day's only. The inspirations are deep, being accompanied by a peculiar croaking tone, that may be heard outside the door. The expiration is also very laboured, and sometimes accompanied by a cry. At times the breathing seems quite arrested, so that the child is in the most extreme danger from suffocation, until, with a cry, inspiration again occurs. The dyspnœa is sometimes irregularly paroxysmal. The alæ nasi are usually expanded, and the lips and hands of a blue colour. Sucking is impossible, and attempts produce the most extreme dyspnœa, which is also excited if the child be fed, the greatest difficulty prevailing in getting it to swallow the least quantity. The mouth is full of saliva and mucus, which collect in small bladders between the lips. According to the amount of disease the remissions are longer or shorter, and the child sometimes at last goes off quite unexpectedly.

The affection consists in a simple hypertrophy of the thyroid; no change in its normal structure, save perhaps some increase in its vascularity, being observable. The whole gland may be affected, giving a crescent shape, and where an isthmus connects the two lobes the neck assumes a great breadth. In other cases only one lobe or even only the apex of that may be affected, and the nature of the disease be undetected. The passage to the larynx and trachea is more or less impeded, while the posterior development of the tumour impedes swallowing, and endangers suffocation in the attempt. The accumulation of mucus is an additional cause of obstruction. It is not merely the size of the swelling of the lobes, but its position, that determines the amount of danger.

The affection would seem sometimes to be hereditary, or at all events it affects several members of the same family. Various friends of Dr. Betz have observed this bronchocele of infants, but he is not disposed to consider it as especially endemic at Tübingen. He thinks that the suffocative dyspnœa and death resulting from this disease may elucidate the nature of some of the cases of laryngeal asthma, spasm of the glottis, thymic asthma, or laryngysmus, concerning which so much confusion and doubt at present prevail. An enlargement of the thymus may certainly co-exist with one of the thyroid, but this last

affords a much more rational explanation of the symptoms. Thymic enlargement may induce dyspnœa, but not the laryngeal disturbance. Atelectasis, too, the author believes, is often due to the impediment caused by this enlarged thyroid.

In a disease so rapid in its progress, little time remains for treatment; but where this is obtainable, leeches should be applied, and an emetic given. Where the hypertrophy is less considerable, and the disease more prolonged, the internal and external use of iodine would be deserving of a trial.—*Med. Times*, Sept. 7, from *Henle and Pfeufer's Zeitschrift*, ix.

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23. *Nightmare caused by Excessive Elongation of the Uvula, and cured by Excision of the Part.* By M. West, of Belgium.—Bronckaert, a fusileer of the 7th infantry, who had been a soldier since January 1849, of feeble aspect, came to M. West, in the course of last March, to request twenty-four hours' exemption from duty, to enable him to recover from the fatigue and fright which he suffered during the night from the apparition of a monster, which threw itself suddenly upon him, so as nearly to smother him, and against which, he said, he had struggled for a long time before making his escape. This strange story led the author at once to suppose that the man had had nightmare. After quieting his mind upon the subject of the monster, which so much alarmed him, the doctor gave him twenty-four hours' exemption, at the same time telling him not to come back to him upon the subject of his dreams. He thought he would not see the man again, but next day Bronckaert came back to say that he had passed a night as horrible as the preceding one. M. West tried to explain to the man the absurdity of his terror; advised him to take a little food in the evening, to sleep on his right side, with the head and shoulders a little raised, thinking that these means would suffice to relieve him.

Bronckaert's torments, however, not having ceased, he came again to the doctor, after having followed his advice for three weeks, and told him that he now saw no hope for relief from these attacks, which had begun more than a year before his enlistment, and under which he expected soon to perish. Having remarked during the interview an obvious imperfection in the man's respiration, Dr. West looked into his mouth to examine the cause, and saw, to his astonishment, that the uvula was about two inches long and four lines broad, although the man had never referred any of his complaints to this quarter. Thinking that the long uvula was the cause of the suffocation and fright which the man suffered during his sleep, Dr. W. instantly cut off from the uvula an inch and three-quarters of its length. The portion excised, being of unusual length, was preserved in spirits, and, after the usual shrinking from the alcohol, still measures an inch and a half.

Dr. West saw the man next morning. He was in an ecstacy of joy. The monster had not re-appeared, and he had passed a good night. That the uvula getting into the glottis was the cause of the man's sufferings appeared both from the complete relief which he thus obtained and from his subsequently becoming strong and fat.—*Monthly Journ. Med.*, Sept. 1850, from *Archives Belges de Méd. Militaire.*

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24. *Ozæna.*—M. Max-Simon, in relating a case of this disease, makes several interesting remarks. Sometimes, he observes, it arises from ulceration of the Schneiderian membrane; at others, a deformity of the organ, whether congenital or acquired, prevents the free discharge of the mucosities of the nose, while in some cases there are signs of simple chronic inflammation. Another class of cases, of which this is an example, arises from a morbid condition of the economy at large, inducing modification in the condition of the secretion: just as we meet with intolerable stinking secretion from the feet in persons perfectly clean; a peculiar odour from the axilla, occurring in others besides the red-haired, in whom it is normal; and an insupportable condition of the breath in certain menstruating women. In such cases as these, the most careful examination exhibits no marks of inflammation or ulceration. The ulceration, in fact, which is met with in syphilis or other diseases, is not the cause of this peculiar stench, which is different from the smell they produce. A delicate

young lady, æt. 14, had been under M. Simon's care for several years for well-marked ozæna. Repeated examinations exhibited nothing abnormal, the mucous membrane being pale and not thickened, and the mucus itself normal in appearance, though sometimes increased in quantity. All medical treatment, whether local or general, proved quite unavailing, so that at last all was abandoned, but extreme cleanliness, and attention to maintain the general health in as good a condition as possible. However, menstruation came on, under the influence of which her system became much stronger, and her health far better, and the fœtid odour diminished, to entirely disappear sixteen or eighteen months after the menses had become established. Another proof of the constitutional character of the disease in this case, and of the inutility of local measures, is found in the fact that a blister having been applied to the girl's arm, the serum furnished precisely the same smell. Her mother, too, suffered from the same infirmity, although by excessive cleanliness she kept it somewhat concealed. Her nose was a flat one, but that of her daughter was well formed.

These well-marked cases must not be confounded with a mere temporary unusual odour of the nasal mucus. In some persons, this is liable to become accumulated or suppressed for a longer or shorter time. In the case of a young man, in whom there is no congestion of the mucous membrane, thickened mucosities are blown out from time to time, having a distinct spermatic smell. A young girl, at times, exhales mucus having the characteristic smell of ozæna, and then, without the slightest care on her part, this disappears.

When the disease depends upon a mere perverted action of the mucous membrane, the nitrate of silver injections are very useful; but when it is a constitutional affection, all local applications are mere palliatives. The greatest cleanliness is essential, and scented waters should be frequently injected into the nose. Sauvages found advantage, in some cases, from the setting up a substitutive action by the use of snuff.—*Brit. and For. Med.-Chirurg. Rev.*, Oct. 1850, from *Bulletin. de Thérap.*, vol. xxxix.

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25. *On the Diagnosis of Tape-worm, from the character of the Nervous Symptoms induced by its presence.*—M. Legendre, has published an interesting memoir, upon the nervous symptoms produced by tape-worm, in the *Archives Générales de Médecine* for June 1850. He places the facts of this department of diagnosis in a very clear point of view; and, on this account, we think it right to call the special attention of our readers to the following brief abstract of his paper. When anomalous nervous symptoms perplex the physician, it is always right to compare them with those which are known to be caused by tape-worm; and if any room for suspicion of its presence exist, it is always imperative to administer a vermifuge. We say *always*, because the experiment is at least harmless, as the perfect safety, as well as the general success of the kousso has now been fully established on unimpeachable authority. We would, in all cases, prefer this medicine, or the oil of the male fern, to the bark of the root of the pomegranate, which is considered by M. Legendre to be the best. The latter is likewise, undoubtedly, a most valuable drug for dislodging the tænia; but it is not quite equal to the kousso, or the male fern.* The following is the substance of M. Legendre's paper.

Thirty-three fully reported cases are carefully analyzed.†

Disorders of the cerebro-spinal nervous system occurred most frequently; viz., in twenty of the thirty-three cases. They were in twelve cases, of a convulsive character, occurring several times, or oftener (being eight times epileptiform, and four times hysterical). In eight of the cases the convulsive movements were partial, being confined to the face, or to a single limb. In fourteen of the thirty-three cases, the convulsions were succeeded by vertigo and cephalalgia.

* London Journal of Medicine, vol. for 1850, p. 896.

† The following are stated to be the sources whence the cases have been derived. "*Archives Gén. de Méd.*, 1840. *Gazette Méd.*, 1839, p. 601; 1840, p. 633; 1843, p. 38. Louis, Observations recueillies à l'hôpital de la Charité sur la Tænia. *Archives Gén. de Méd.* Mérat du Tænia et de sa cure radicale par l'écorce de racine de grenadier, obs. 14, 15, 17, 18, 19, 22, 24, 25, 26, 27, 82, 108, 119, 120, 121, 142, 154, 155, 157."

Swooning, complete or incomplete, was noted in about a fifth of the cases; viz., seven times.

Disturbed vision was noted in six of the thirty-three cases. This consisted in double vision or in the presence of flocculi, of *muscæ volitantes*, and of luminous flashes. One patient is mentioned as having had periodical blindness.

Buzzing in the ears is only mentioned as having occurred in three of the cases.

A pricking or gnawing sensation at the epigastrium existed in fourteen of the thirty-three patients. The symptoms now enumerated rarely existed singly in one patient, and two or three of them were generally present in the same individual.

Whenever one or more of the above symptoms are observed, and no other explanation can be given, an investigation should be made to determine whether they may not depend upon tape-worm. If the physician discover that the patient have a gnawing at the stomach, capricious, or insatiable appetite, abdominal pain, a feeling of general prostration, or itching at the entrance of the nostrils or anus, there can be little doubt of the presence of the parasite. M. Legendre believes that the best time for giving vermifuge is when the symptoms are most urgent, or when some parts have been spontaneously voided. He says that Wawruch, of Vienna, in an analysis of two hundred and six cases, attributes such occurrences to lunar influence; asserting that they occur most frequently at the full moon, or during its decline, and that it is, likewise, at these times that the patient suffers from an exacerbation of the symptoms. It was not till M. Legendre had finished his researches that he became acquainted with the analysis of M. Wawruch's paper, published several years ago, and which, from its value, we subjoin.—*London Journ. Med.*, Nov. 1850.

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26. *Wawruch on the Causes and Symptoms of Tape-Worm.*—The following is an extract from an abstract, contained in the *Gazette Médicale* for 2d October 1841, of a paper published by Professor Wawruch in the *Medicinische Jahrbucher der Œsterreichischen Staaten.*

During the period of twenty years, Dr. Wawruch treated 206 persons affected with tænia; 71 men, and 135 women. The oldest person was aged fifty-four; the youngest, three and a half years. Twenty-two were under fifteen years of age; and among these were six girls who had not menstruated. Most of the patients were from fifteen to forty years old. The patients belonged to the middle and lower classes; they nearly all inhabited the district lying along the Danube, or lived in low and damp dwellings. They followed very different occupations, and their mode of life was various. It is remarkable that the same conditions which give rise to scurvy in Vienna also produce tape-worm. The articles of food which seemed chiefly to engender tape-worm were bad bread, meals of milk, butter, cheese, potatoes, pork and mutton, and bad water. The diseases which preceded the formation of tænia were gastric and cutaneous affections, but especially gastric and intermittent fevers. There were observed forty-three cases of intermittent fever, twenty of gastric fever, sixteen of typhoid fever, ten of ringworm and herpes, forty-two of itch, eight of scarlatina, thirteen of measles, and two of chronic urticaria. Scurvy, syphilis, chlorosis, and other diseases which affect digestion, were also observed to precede tænia; but, in general, few of the individuals affected with tape-worm had not had lumbrici when young. The influence of hereditary predisposition is very doubtful. Dr. Wawruch only saw two instances; in one, a mother and daughter, in another, a father and son, had tænia. Irregularity of the menstrual function seemed common; thus, thirteen females had only menstruated at the age of 16 years, twelve at 17, nine at 18, seven at 19, and one at 20. The duration of the disease was from a few months to ten, twelve, fifteen, twenty, twenty-five, and, in one case, even to thirty-five years. Of the 206 patients, three only, who were foreigners, had *bothriocephalus;* the others had *tænia solium.*

Symptoms. The symptoms of tænia are very various; the following are stated by Dr. Wawruch to be the most constant.

1. Dull pain in the frontal region, vertigo, noises in the ears; and, in some

a kind of idiosyncrasy for music. 2. Eyes dull, surrounded by a blue ring; œdema of the upper eyelid; pupils dilated; frequent involuntary action of the muscles of the eye; various aberrations of sight, as amblyopia, diplopia, ormuscæ volitantes. One patient complained of a periodical blindness during the day, 3. Frequent change in the colour of the face; lips lead-coloured; a peculiar look about the mouth and nose; the appearance of general cachexia is not constant, for the patients often preserve a flourishing aspect for some time: many of them say they have become thinner. 4. Anorexia, alternating with such a voracious appetite that the patients faint if they are not supplied quickly enough with food; desire for certain articles, as carrots, milk, wine, bread, etc. 5. Fetid breath, clayey taste, loaded tongue, salivation, nausea, and even vomiting of liquid, as clear as water, in the morning. 6. Itching of the nose and anus, and of the vagina in females; grinding of the teeth, especially during sleep; accumulation of a clear fluid in the mouth; transient heat, languor, palpitation. The sensation of a cold hand pressing on the heart (considered as a pathognomic symptom by Reinlein) has never been observed. 7. Abdomen tumefied; borborygmi; a sensation of suction, constriction, and pricking, around the umbilicus, and undulatory movements, as of a foreign body in the intestines—especially in the morning; cessation of these symptoms after taking farinaceous food, hot bread, or *café au lait;* frequently diarrhœa, alternating with constipation. 8. When the disease has continued for some time, and the patients are of an irritable temperament, there often arise a train of nervous symptoms, as melancholia, syncope, aberrations of the senses, disturbed sleep, frightful dreams, partial and general convulsions, chorea, epilepsy, aphonia, and loss of speech. 9. The most certain pathognomonic symptom is the evacuation of one or more portions of tape-worm, either spontaneously, or after certain severe illnesses—as scarlatina, typhoid fever, pneumonia, etc.; or after the use of certain articles of food, as garlic, horseradish, cucumber, etc.; or after the administration of anthelmintic medicines. The portions are sometimes evacuated at indeterminate periods, but generally at new moon, or at the decrease of the moon; and, at these times, also, the other symptoms are increased in severity. —*London Journ. Med.*, Nov. 1850.

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27. *Cod-liver Oil in Phthisis.*—M. Duclos thus sums up the results of his experience with this substance; 1. The presence of fever is what we must chiefly attend to, relying more on this remedy when it is absent, and less when it is present. 2. The remedy frequently arrests the progress of the disease when only in the first stage. 3. It rarely arrests it when in the second stage, although it may retard it. 4. The third stage is not favourably influenced by the oil. 5. The oil should be administered for a considerable time; and, if a good effect results, it should be suspended awhile, to be again resumed. Thus, it may be given for two months, and then suspended for a fortnight, resumed for a month, and re-suspended for a fortnight again, so as gradually to reduce the length of the intervals during which it is given. 6. The clear, slightly smelling, nearly tasteless oil, is less efficacious than the brown, thick, strong oil.—*Brit. and For. Med.-Chirurg. Rev.*, Oct. 1850, from *Bulletin de Thérapeutique*, xxxviii.

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28. *Inunction in Scarlatina.*—During an epidemic scarlatina in Berlin, Dr. Ebert tested the value of the treatment introduced by Dr. Shneeman, of which we gave an account in our last, No. (p. 503, *et. seq*). The result has been tolerably encouraging. Of twenty-eight cases of severe scarlatina, six died and eleven recovered. Of the six deaths five had not been submitted to inunction; the remaining one was an infant, who died suddenly after one rubbing. This fatty inunction appeared to hasten rather than to prevent the exanthem. In those cases which were assiduously anointed, no desquamation occurred, neither were any of the sequelæ, as anasarca, abscesses, &c., observed. The anointing was also thought to prevent infection.—*Schmidt's Jahrbucher*, June, 1850.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

29. *History of a successful case of Ovariotomy.* By W. E. Duffin, Surgeon; *with a description of the Morbid Anatomy of the sac, and an analysis of one hundred and eight cases of ovariotomy which have occurred in Great Britain.* By Robert Lee, M. D. [The following account of a case of ovariotomy, read before the Royal Medical and Chirurgical Society, with the report of the discussion to which it gave rise, is so interesting and important as showing the opinions of some of the most eminent surgeons of Great Britain relative to that operation, that we are not deterred by its length from laying it in full before our readers. We would especially invite attention to the remarks of Mr. Lawrence, one of the most experienced, learned, and judicious surgeons of the present day.]

A woman, thirty-eight years of age, having her abdomen enlarged to the size of the eighth month of pregnancy, this size having been attained in seven or eight months, her general health appearing to be good, applied to the author for relief by operation. The rapid growth of the tumour, which appeared to be connected with the left ovary, had been accompanied by neuralgic pains in the right thigh, in consequence of pressure on the sciatic nerve of that side. The tumour was very movable, indicating the absence of adhesions. The patient was very urgent in her desire for the operation, and very confident that it would be successful; it was accordingly performed on the 27th of August last, by the author, assisted by Messrs. Ferguson, Ure, and Henry Smith; chloroform having been previously administered by Dr. Snow. The incision, at first of only sufficient size to admit the fore-finger for exploration, afterwards enlarged to three inches, was made in the linea alba, midway between the umbilicus and the pubes. The absence of adhesions having been ascertained, the sac was punctured by a trocar, and one hundred and thirty ounces of a viscid, ropy fluid of a light brown colour were let out. The collapsed cyst, containing a smaller cyst the size of an orange, was drawn through the incision, and its pedicle secured by ligatures. The tumour was then separated, and the pedicle and ligatures were prevented from receding into the cavity of the abdomen by other ligatures attaching them to the wound. The ligatures came away on the fifteenth day, and the wound was healed on the twenty-second day, the abdomen resuming its natural shape and size. The patient was kept on a light diet, she took opium in sufficient doses for six successive nights, and the bowels were opened by enemata. On the eighteenth day, she was able to get about a little. Her recovery has been complete, and she has been able to resume the occupation of a dressmaker.

Dissection of the Cyst. By Robert Lee, M. D., F. R. S. The walls of the cyst are composed of three distinct coats or layers. First, a peritoneal covering; secondly, a middle fibrous coat; and thirdly a dense, membranous sac, in which the fluid was contained. In the divided pellicle are seen the cut ends of three large arteries, and of one large vein, and of the Fallopian tube. The peritoneal coat is thin, and loosely attached at the root of the cyst; but beyond this it is thick, opake, and firmly adherent to the tissue below. The middle coat is thick at the root, and contains numerous branches of arteries and of nerves with ganglionic enlargements. It becomes thinner as it is expanded over the cyst, is of a dense, fibrous structure, and adheres firmly by both its surfaces. The internal membrane is firm and thick, and its inner surface is rough, irregularly puckered, and in some spots of a brown or yellowish colour. It consists of two distinct layers, like the coats of a Graafian vesicle. A smaller cyst is situated near the root of the larger, imbedded in its middle coat, projecting into its cavity, and invested by its lining membrane, which it has pushed before it. The lining membrane of this smaller cyst also consists of two distinct layers, like that of the larger cyst. A group of small multilocular cysts is contained in the middle fibrous coat of the great cyst, and between the outer surface of the smaller cyst and the peritoneum. They have the same structure, contain a similar fluid, and bear the same relation to one another as the two cysts above described. The author remarks that the walls of this ovarian cyst contain all the elementary structures which enter into the composition of the human ova-

rium in the healthy condition—peritoneum, stroma, and Graafian vesicles, with blood-vessels and ganglionic nerves. Whether all multilocular cysts are formed in the same manner, future observation must determine.

The author commences with the history of a case of ovarian dropsy successfully removed by a surgical operation, and reported in the *Edinburgh Medical and Surgical Journal* for 1822, by Dr. Nathan Smith, Professor of Physic and Surgery in Yale College, Connecticut. He then gives an account of an operation performed by Mr. John Lizars, of Edinburgh, in 1823, when *no* ovarian disease was found after the abdomen had been opened; of three other operations, by the same surgeon, when the diagnosis was more accurate, in 1825 and 1826; and of two operations by Dr. Granville, in 1826 and 1827. He then refers to an operation performed in 1833, by Mr. Jeaffreson; and to three operations by Mr. King, in 1834 and 1836. During the last twenty-seven years the operation has been attempted or performed more than one hundred and thirty times in Great Britain. Of one hundred and eight cases, of which authentic reports have been received, in thirty-seven cases either no ovarian cyst or tumour to remove existed, or there were present ovarian cysts and tumours, the removal of which was found to be impracticable, and the operation was abandoned. Of these thirty-seven cases, fourteen were fatal. The analysis given of one hundred and eight cases of ovariotomy shows that in thirty-seven, or about one-third of the whole number, it was impossible to determine *previously* whether ovarian disease actually existed, or when it did exist, whether its removal was practicable. Of the seventy-one cases in which ovarian cysts and tumours were removed, twenty-four proved fatal, in fourteen of which the operation could not be completed. In the tabular analysis of the one hundred and eight cases appended to the paper, it appears that forty-five cases are reported by Dr. Clay and eleven by Mr. Lane; and to both of these gentlemen the author expresses his thanks for the manner in which they have communicated to him the entire results of their experience of the operation.

The PRESIDENT having called attention to the importance of the paper,

Mr. CÆSAR HAWKINS rose and said—As my name has been enumerated among those who have performed this operation, it is obvious that I have been disposed to look upon it favourably, from the accounts of the cases which have been published, in which it has been done. But I must confess that for the last three or four years I have not altogether felt the same confidence in the propriety of the operation, and have seen the great necessity of the fullest information regarding it. It is well known that the operation has been very frequently attempted, and it is generally believed that a considerable proportion of the operations have been fatal, or have been impossible of completion, of which the public have no information. Nor could I overlook the fact that the operation has now been attempted by ten surgeons attached to hospitals in London; that not one of these gentlemen has performed it twice; and that of these ten cases the only one in which the patient was fortunate enough to recover from the operation was that in which I myself operated. I think, therefore, that the Society and the profession at large are much indebted to Dr. Lee for the table of cases which he has laid before us; and I feel this the more as I believe it is owing to my suggestion that he has done this; and I must say I was delighted, when I spoke to him about it, to see him take out his tablets, and enter my suggestion in his usual short-hand notes. I felt that many of the cases hitherto recorded as having been done in foreign countries, and mixed up with our own in previous tables, were not detailed with sufficient accuracy or precision to be at all relied upon as safe guides; I felt assured that a sufficient collection of English cases now existed to settle completely the great question of the principle of the operation, and that either through the right feeling of the operators themselves, or through some of their friends, authentic histories of almost every case could be obtained, whether successful or unsuccessful, by the industry and perseverance of Dr. Lee, if he undertook such an investigation. I have little doubt that I shall be able, by examining such a table, to satisfy my own mind; and I dare say some gentlemen may already have thought that if in so large a number as thirty-seven cases—a third of the number contained in the table now given to us—it were unable to have the operation completed be-

cause of adhesions, or because there was no tumour at all, that the propriety of the operation being performed in any case whatever was at once determined in the negative. But one thing has struck me with much regret, in the reading of this list of operations; I mean, the omission of the names of two gentlemen, who are generally supposed to have done this operation very frequently in London. I do not know whether these gentlemen are present in this room, but I hope that they are. It is not my intention to say anything that can be considered offensive, and I hope, therefore, that they will not be offended with me if I appeal to them, by expressing my desire that before this table is published, as I doubt not it will be, by the council, they will give the result of their experience to Dr. Lee, and that he may be allowed to incorporate their cases, with any others that he may hear of, in an amended table, with a more complete analysis of the results. One of these gentlemen, whom I venture to allude to—I mean Dr. Frederic Bird—has actually put on record, in some publication of his first successful cases, his opinion of the impropriety of withholding any information from the public with regard to this very operation. I appeal, therefore, to him with the greater confidence. He stands pledged to the profession to give them an account of all that he has done on this subject. He has a perfect right, it is true, to give this information when and in what manner he pleases; but I do hope, when a person of Dr. Lee's character and standing in the profession is endeavouring to obtain complete statistical knowledge of such a very important subject, that both Dr. Bird and Mr. Walne will consider that the time has now arrived for them to make their experience available to the profession. We shall then have ample and authentic facts to reason on, and shall be able to settle the principle of the operation at once and for ever.

Dr. Frederic Bird remarked that he could not but express his surprise at the omission of his cases in the table compiled by Dr. Lee; for although he had declined giving to Dr. Lee the details of his operations, yet he had sent to him their results, and had, by letter, informed him that he had extirpated ovarian tumour twelve times—eight times successfully, and four times without success. He had declined giving to Dr. Lee any details of his operations because he objected to the manner in which Dr. Lee's tables had been arranged—an arrangement which was at least open to error, if it were not in itself erroneous. He preferred to publish his own cases; he was about doing so, and the result of his experience would be laid fully before the profession.

Dr. Lee replied that it was true that Dr. F. Bird had furnished him with the bare results of the twelve cases in which he had operated; but this information was so meagre that he could not, in justice to the completeness of the other cases in his table, add them to that document. Dr. Bird had declined to give him any further information on the matter. Besides, no mention was made in the communication of Dr. Bird of those cases in which an attempt had been made to remove the tumour without success. Under these circumstances, he had left out the cases of Dr. Bird altogether. Mr. Walne had also declined to furnish him with the particulars of his cases, and they had, therefore, been omitted also.

Dr. Bird having been asked in how many cases an attempt had been made by him to remove an ovarian tumour in which the operation could not be concluded, said that he had frequently made small incisions into the abdominal parietes for the purpose of determiuing the presence or absence of peritoneal adhesions, where no other means of inquiry could determine the question. Not unfrequently cases occurred in which from the large size of the tumour, or other causes, the ordinary means of examination was insufficient, and when the only means of completing the diagnosis was that of making a small incision—a practice which he believed to be often admissible, and not less safe—the fear of subsequent peritonitis could scarcely be entertained, inasmuch, as the close adhesion of the ovarian tumour to the parietes, when such adhesions existed, prevented the peritoneal cavity from being exposed, and there was no danger of subsequent inflammation; whilst if no adhesions existed, the tumour could be removed. He believed the practice to be, when necessary, safe—speaking quite at random as to numbers. At that moment, he was almost afraid to state any number of cases in which small incisions had been employed without sub-

sequent danger—probably he might startle some gentlemen by stating as many as forty or fifty; but of this number he was speaking quite at random, not having made any reference to his notes of cases—certainly in no instance did any bad result ensue.

Mr. Curling inquired in how many cases patients had died after exploration.

Dr. F. Bird.—In none.

Dr. Lee remarked that in one case explored by Dr. Bird in the Free Hospital, he had been informed the result was fatal.

Dr. Bird.—In that case, no operation for removing the tumour was ever thought of; tapping only was resorted to, and a tube left in.

Some conversation now took place respecting the propriety of reading a letter from Mr. Chance, respecting the case under dispute; but the chairman decided that it was not desirable to read it.

Dr. Lee said that in the table before the Society, out of thirty-seven cases in which the tumour had been attempted to be removed without success, fourteen of the patients had died. This fact was amply sufficient to show that what was called "the exploration" of these tumours was by no means a harmless proceeding.

Mr. Cæsar Hawkins.—I venture to rise once more, and to repeat the appeal which I before made to Dr. Bird, that his cases may be given to Dr. Lee, to be added to his table before its publication; and I feel assured that I am only expressing the wish of every member of this Society, that every case in which the operation has been performed or attempted to be performed in this country may be communicated with the liberality which has characterized almost every one who has operated. Everything that has passed in this room shows still more strongly the necessity of this being completely done, in order that any legitimate deductions may be drawn from such a table. Dr. Bird has informed us, that besides the twelve cases in which he actually removed the ovary, of which eight were successful and four died (not communicated, however, in time to Dr. Lee), he has made incisions of an exploratory character in forty or fifty other cases, which he is unwilling to have considered as examples of the operation; not being quite certain of the number, we will call them only forty. Now, whatever Dr. Bird may think of it, I am quite sure that no other operator will consider it a trifle to make an incision into the abdomen of several inches in length; and all these cases ought in common fairness to be reckoned as cases of attempted ovariotomy. No doubt Dr. Bird has refused the operation in some cases, so that these exploratory openings must have been made because they were not quite so clear to him; and in all these forty cases he was doubtless prepared had he found the operation practicable, after this incision was made, to have gone on with them to the entire removal of the tumour. Observe then the result of adding these forty attempted removals to the thirty-seven recorded by Dr. Lee; we at once have no less than seventy-seven cases in which the operation could not be finished after it had been commenced—actually half of the entire number of operations which the table would then contain. Sir, before I came here to-night, I made this extract of what Dr. Bird has himself said—"Another and not less important source of fallacy arises from the fact that a most reprehensible practice exists of suppressing the publication of unsuccessful cases. Several such have occurred, the faithful relation of which might have shed much additional light on the operation, but are still carefully concealed from the profession." Of course, sir, I have no intention of accusing Dr. Bird of doing this, and I may be wrong in calling these forty instances in which he opened the abdomen by the name of unsuccessful attempts to perform the operation of removing the ovary; but I have a right to think them such, unless all their details are given by him. He stands pledged to afford these details to the profession in the extract I have just read; and although, as I before said, he has perfect liberty to do this when he thinks right, I do trust he will satisfy himself, on further consideration, that he cannot do better than take the present opportunity of giving them to a gentleman of Dr. Lee's rank in the profession, for the scientific purposes of this society.

Dr. J. B. Thompson said it would appear that the operation of ovariotomy was

more fatal in this climate than in the east, where he had been lately practising. In Damascus, two-thirds of the cases operated upon had been successful.

Mr. B. Phillips said—I entirely concur with Mr. Hawkins in his reprehension of the practice which now so largely prevails, of publishing successful, and withholding unsuccessful cases—a practice which ought to be visited by the indignant reprobation of the profession. It is a suppression of the truth, which every honest man would condemn, and unless there be any code of honour, or morals, which allows of medical men doing what other classes of society could not do without degradation, the practice will be scouted in this society. For many years the disposition to this practice has been growing, and it has attained to such a height that we are even at this moment unable to determine the results of most of the great operations of surgery, so as to guide us in the advice we should give to our patients. Ten or twelve years ago I tried to ascertain what was the mortality after amputation; I embodied my researches in a paper which was read before this society. It was referred in the usual course, and one of the referees was so satisfied that my results were wrong that he advised the council not to publish it. This advice was followed, and the paper was not published. The years that have passed have served to show that the mortality is not as I said, twenty-three per cent., but nearer twenty-seven. If a faithful record of results had been kept, the referee, in that case, could not have fallen into such an error. No man is bound to publish his experience: but if he publish his successful experience, he is then morally bound to publish that which is not successful. He cannot honestly garble it, if the truth must be told; and the truth means the whole truth. What attached such an odium to M. Civiale's name some years ago, but that he was supposed to have told the truth in such a way as to represent an untruth? He had a large number of stone cases consigned to him for treatment by lithotrity. He stated that he had operated on two hundred and forty-four cases, and that two hundred and thirty-six were cured. The whole truth was that he had had recourse to sounding, and other manipulations, in ninety-seven other cases, but he did not choose to complete the operation. Correctly stated, he should have said three hundred and forty-one cases, two hundred and thirty-six cures. His reverses, then, should have been stated as one out of three, instead of one out of thirty. In what particular does the revelation of to-night differ from that? We are told of twelve operations, and eight successes; but nothing was voluntarily said of forty or fifty cases, in which the operation was commenced, and could not be proceeded with. For myself, I feel utterly unable to advise a patient to submit to the operation for the extirpation of an ovarian cyst. If I turn to one side, I am assured that the operation is little short of murder; if I turn to the other side, I am told it is comparatively harmless. Is it honest that medical men, having claims to respectability, should have left us in that plight, when they possessed the means for guiding our judgment? Many of the operations of surgery are performed in our hospitals, in the face of day, and the results may be registered. The operation of to-night has not often been performed in hospitals; it has been done in private houses, to which the public have no access. Is it not, then, doubly incumbent on those who have the means to remove the veil which may conceal the results of those cases? Judged, then, by the information laid before us to-night, we find that the abdomen has been laid open many times, when there was no tumour in it; that the operation has been performed, in this country, seventy-one times; and that forty-seven have recovered; and from Dr. F. Bird's statement, it is made evident that so utterly valueless is the diagnosis that he has commenced the operation—that is to say, that he has made an incision into the abdomen "forty to fifty times" without being able to proceed with the operation. In given cases, in which the cyst was single, there was no adhesion, and the patient was healthy; the operation might, perhaps, be successfully performed, or at least it was the most likely of all cases to be successful: but it had been proved to-night that we had no means of determining the real condition of an ovarian tumour, and not even whether it were adherent or not, without the performance of an exploratory operation.

Mr. Cæsar Hawkins, on rising, said, I feel that I ought to apologize for rising again, after I have already spoken twice; but I am tempted to do so from what

Mr. Phillips has just said. He has spoken of cases of a single cyst in a healthy young woman, as being especially the case proper for this operation. Now, sir, I have quite made up my mind, of late, that these are especially the cases in which it ought not to be performed. I quite agree with my friend Mr. Phillips that such cases are the most likely to be successful, but I believe that ovariotomy is so dangerous an operation that we are not justified in resorting to it, and encountering so much risk, unless an urgent danger is to be avoided. I have heard some persons of great eminence speak of ovarian tumours generally as a disease that often lasts for twenty or thirty years with generally little hazard to life; I cannot myself subscribe to such an opinion, but believe, on the contrary, that it is commonly fatal in not many years, and, consequently, that in such cases the trial to remove the whole disease by operation, however dangerous, has been justifiable. I cannot but think, however, that the profession have not commonly made sufficient distinction between cases of simple serous cyst in the broad ligament of the uterus, and the cysts formed in the ovaria themselves by growth of the Graafian vesicles. In the latter only, as I think, is it that there is such a constant tendency to form the thick, tenacious mucus, which is, I presume, in reality, purulent secretion, converted into mucus by alkali, constituting a great abscess. In this only is there much risk of secondary cysts forming a multilocular tumour, and an almost invariable tendency to increased rapidity of the filling of the sac, all of which lead to a fatal result in a given number of years, and are sufficient to justify a dangerous operation, which is not proper in cases of the sacs of nearly pure water developed in the other situation. To show the great variableness with which the fluid may be secreted in cases of the serous cyst of the broad ligament, I will venture to describe the several periods of tapping necessary in a case which I believe to be of this description, the patient, however, being still alive. A young woman, when seventeen years old, began to enlarge, in the year 1834; in August, 1837, three years afterwards, I tapped her, and removed ten pints of simple watery fluid; in February, 1838, nine pints of the same transparent liquid were drawn off, being six months after the first operation; in May, 1841, eight pints were removed, being three years and three months since the last time; in May, 1842, only one year afterwards, six pints; in October, 1844, eight pints, being no less than two years and five months between the two operations. In Feb. 1846, ten pints were removed, at an interval of only one year and four months, scarcely more than half the former period. In Feb. 1849, she married, and was confined in Nov. following, after which she was near dying from a return of the dropsy, which had not been noticed till after her confinement, and may have been excited by the pregnancy; in Feb. 1850, however, she again had ten pints of the same clear fluid removed, being no less than four years from the last tapping, after which she again recovered her health. I am inclined to think, from other cases of serous cysts, that there is a greater chance of prolongation of life than in the more common tumours, whether single cysts or multilocular, which are situated in the ovarium itself, and hence I should not now think myself warranted in removing those cysts in the broad ligament, as I have hitherto done with regard to the more rapidly fatal tumours of the other description.

Dr. Tilt considered that the society was much indebted to Dr. Lee for the table before them, and which must be interesting to all. It was most desirable that all the evidence respecting ovariotomy that could be procured should be brought forward, in order that we might be able to form a definite opinion on this really most important operation. In his (Dr. Tilt's) opinion, Dr. Lee had started on the right principle in this inquiry, and had refused most properly to club all kinds of cases together. He had followed out the individual history of each case, and had classified them accordingly. This was the only way in which the cases could be made valuable in determining the risk of the operation. For instance, some of the cases of ovarian disease were of a very chronic character, whilst, in others, the disease was so acute as to resemble peritonitis in a mild form. Now, it would be obvious, that to class these two forms of cases together might lead us to a most erroneous conclusion. In the chronic form of the disease, attacking patients late in life, it was, he believed, unjustifiable to operate; but in some cases, where the disease was more acute, and it

occurred between the ages of eighteen and thirty, it might be justifiable. Dr. Atiee, of Philadelphia, had operated in thirty-six of such cases; of these, twelve died, and twenty-four recovered. Looking at the mortality in those cases where no operation was performed, and to the fact that life was very rarely prolonged beyond two or three years, it would at once be seen how important it was to arrive at right conclusions respecting the operation. The question, then, immediately suggested itself as to which were the cases most favourable for operation. Upon this point we must remain in doubt, so long as fatal cases, and their histories, were withheld from publication.

Mr. B. Phillips requested permission to offer a few words in explanation, after the remarks which had fallen from Mr. Cæsar Hawkins. He (Mr. Phillips) did not wish to be understood, in his remarks, to mean the ordinary serous cyst, and its ordinary termination; but he would state that he had seen ovarian tumours removed on eleven occasions. In six of these cases the cysts contained serous fluid; and of the six patients he had every reason to believe that four got quite well. It was this fact which had induced him to say that he regarded the simple serous cyst as the most likely case in which an operation would prove successful.

Mr. I. B. Brown, speaking from considerable experience of ovarian disease, would repeat some conclusions at which he had arrived respecting its treatment. These conclusions he had read before another society, on a preceding night.

(Mr. Brown's conclusions will be found under the head of Medical Society of London.)

Mr. Lawrence rose and said—Mr. President, I did not attend the meeting of the society to give information, for I have no experience of ovariotomy; I have not performed it, and unless my view of the matter should be essentially altered, I never shall; nor have I seen it performed. I came, sir, to listen and to learn, and my expectations of information have not been disappointed. I have heard things strange and new, at the same time instructive. From the interesting document presented to the society by Dr. Lee, for which he deserves the best thanks of the profession, the public, and more especially of females labouring under abdominal enlargements, it appears that in thirty-seven out of one hundred and eight authenticated cases of operation collected by him, it was found, when the abdomen had been exposed, either that there was no diseased ovarium, or one so circumstanced as not to admit of removal. We cannot help believing that this announcement, however unexpected and startling, represents ovariotomy in too favourable a light. Dr. Lee's list is imperfect, confessedly so; it contains only the cases of which he has received authentic accounts. There is no reason for supposing that any successful operations have been omitted. We have generally, perhaps invariably, heard of them as soon as the cicatrization of the wound had been completed. The same alacrity has not been observed in the communication of unsuccessful cases; and I am not aware that any one of the thirty-seven cases just alluded to has been published by the operator. We can hardly doubt, therefore, that if a correct list were drawn out of all the operations, the proportion of cases in which ovariotomy had been fatal would be increased, and that a considerable addition would be made to the thirty-seven instances, in which the perilous proceeding of exposing the cavity of the abdomen had been resorted to unnecessarily. Dr. Lee's list, however, as it now stands, is quite sufficient to make us doubt the propriety of admitting ovariotomy into the catalogue of recognized and approved surgical operations. We are still in the dark on one point, which ought to be ascertained before we can determine the true value of the proceeding; that is, its influence in prolonging life. Our excellent colleague may probably have acquired information on this point, in prosecuting the researches, of which he has now laid the result before the society, and he could probably render them still more complete by learning the subsequent history of the cases, in which the operation had been successful, by ascertaining the kind of health enjoyed, and the duration of life after recovery. The chances offered by the operation would be expressed by the average duration of life in those who have undergone it, if that can be ascertained, reduced in amount by a deduction, and that not inconsiderable, on account of those in whom the operation ends fatally, whether completed by removal

of the ovary or not. The result thus obtained must be compared with the probable duration of life in those patients who receive such relief as can be afforded by the other resources of art. Many years ago I saw a female from the north of England who had undergone ovariotomy, as it was reported, successfully, not very long before the time of my seeing her, the operator being Mr. Lizars. It was performed when what was then called the major incision was in vogue —that is, a cut through the parietes from the ensiform cartilage to the pubes, such as we make to expose the abdomen for examination after death. There was a sound cicatrix on the person of this female, indicating that an incision of that description had been made. The pelvic region was occupied by a large solid mass of disease. The comparison I have now suggested must be made between two sets of cases similar in their nature. Ovariotomy is not performed indiscriminately, but in selected instances. The cases chosen for operation are exactly those in which it is the least necessary, the danger to life being remote, and the patients sometimes living for years with only an occasional interruption of health and comfort. Mr. Hawkins has pointed out the important distinction between the simple serous cysts developed in the broad ligament, with their contents of watery consistence, and the more serious disease of the ovary itself, with its multiplied cysts, and their thick, variously coloured secretions. Two instances of the former kind were under my observation for many years, and I believe that both individuals are still living, although it is long since I have seen them. Elizabeth L—, a rather tall and well-made woman, who had always enjoyed good health, found a swelling in the lower part of the abdomen soon after the birth of her last child, in 1819. It gradually increased for about three years, hardly troubling her except by its bulk, which, however, had become so considerable in 1823 that relief was absolutely necessary, and I drew off in St. Bartholomew's Hospital a pailful and a half of fluid, of watery consistence, and slight whitish opacity. She soon recovered her health and strength, feeling as capable of exertion as at any period of her life, and for nearly two years she thought herself perfectly recovered. She increased in size at the end of this time, and was tapped again with the same complete relief as before. From this time to 1829 she was tapped three times, and did not swell again after the last date. I saw her in October, 1831, in perfect health, and without any abdominal enlargement. She had sometimes experienced an uneasy sense of fulness, which was relieved by purgatives. In the preceding winter she had suffered three or four attacks of spasmodic breathing. Since their cessation she had been quite well, and equal to all the exertions which her situation in life required. She had drunk nothing but water. I saw her again in June, 1842. She had lived for the preceding two years at Charlton, in Kent, enjoying excellent health, and free from every trace of her former disease. I tapped a lady for ovarian dropsy, and let out a few pints of clear fluid. She regained her former size, and considered herself quite free from disease. In four or five years she increased in bulk, and the operation was repeated, a smaller quantity of similar fluid being drawn off. I saw her again in 1842, sixteen or seventeen years after the first operation. She had enjoyed uninterrupted health since the last tapping, and nothing abnormal could be detected in the abdomen on the most careful examination. A statement more remarkable even than those in Dr. Lee's communication has come out in the course of this evening's discussion, having been accidentally elicited, rather than mentioned intentionally. A gentleman, who spoke from the middle of the room, has informed us that he had performed ovariotomy twelve times, and had intended to communicate the particulars to Dr. Lee. This list of operations, however, is of little importance, in comparison with the other matter, mentioned subsequently—viz., that in between forty and fifty cases, as I understood him, he had made an opening into the abdomen, in order to ascertain, in cases of supposed ovarian disease, whether the state of things was fit for operation; and having found that it was not, he closed the opening again. He added that not one of these persons had suffered from the proceeding. If we had not heard this report from the operator himself, we might have been excused for feeling some hesitation in giving it credit. To determine whether a diseased ovary, or other abdominal tumour, admits of excision, it must be necessary to examine the situation and connections of the part

with the hand, which would require a somewhat large cut through the abdominal parietes. To find that this could be done with impunity in between forty and fifty instances is what we should have little expected. As similar good luck could hardly be expected to attend other patients, I would caution the younger part of the company against imitating the boldness of this operator. The naked statement heard to-night does not enable us to appreciate the affair satisfactorily: we must wait for that promised publication of full details which is necessary to substantiate so novel a report. In the meantime, the simple statement, coupled with the thirty-seven cases of Dr. Lee, affords evidence of difficulties in diagnosis that must be perplexing to the ovariotomist. A gentleman on the left has brought before us another proposal; that of making an incision in the abdominal parietes, and then cutting into the ovarian cyst, for the purpose of establishing a communication with the exterior, to serve as an excretory duct, or, as I think he called it, an oviduct. He is probably unaware that diseased ovaries have been dealt with long ago in various ways more or less similar to this. The result has been, I believe, invariably fatal. Ovariotomy, with all its dangers, has the merit of completely removing the disease. This plan, more dangerous than ovariotomy, would leave the disease behind, lighting up inflammation in the great mass covered by peritonæum, and in immediate contact with the abdominal viscera. Many years ago, I saw attempts of this kind in more than one or two instances: they were all fatal. The discussion of this evening, excited by the important communication of Dr. Lee, will at least serve the useful purpose of admonishing us to pause in the attempts at treating diseased ovaries by surgical operation; and, after seriously considering the matters brought to light by that communication. the forty or fifty cases from another quarter, and the proposed oviduct scheme, to ask ourselves the question whether such proceedings can be encouraged and continued without danger to the character of the profession.—*Lancet*, Nov. 23, 1850.

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30. *Operations for Ovarian Disease.* By Frederic Bird.

a. *Cases in which the Tumours were removed.*

Mrs. G.—Large non-adherent tumour. Present at operation, Dr. H. Roe, Mr. B. Phillips, and others. Complete recovery.

Miss H.—Large non-adherent tumour, sessile. Present, Dr. Cape, Mr. B. Phillips, and others. Complete recovery.

Mrs. W.—Large colloid tumour, generally adherent. Present, Dr. Locock, Dr. Hodgkin, and others. Complete recovery.

Miss M.—Large simple sac. Present, Dr. Ferguson, Mr. Clarke, Mr. B. Phillips, and others. Complete recovery.

——. Tumour adherent to pelvis and uterus, rendering necessary to leave a segment of the cyst attached. Recovery. Present, Dr. H. Roe, Mr, Parrott, and others.

H. T.—Tumour adherent to pelvis, of great thickness. Complete recovery. Present, Dr. Elliott, Dr. Ansell, and my colleagues at the Metropolitan Free Hospital. This was the first successful case occurring in hospital practice.

Miss D.—Large sessile tumour, adhesions. Died on third day. Present, Dr. Murphy, Mr. Streeter, and others.

Mrs. L.—Tumour bound down in pelvis, causing unceasing suffering; tapping required every ten or twelve days. Died on third day. Present, Dr. Rigby, Mr. Bryant, and others.

Mrs. H.—Two large compound tumours, involving both ovaria. Complete recovery. Present, Mr. Blagden, Mr. Cholmondeley, and others.

Mrs. G.—Small tumour, non-adherent. Died on fifth day. Present, Dr. Rigby, Mr. Chance, and others.

——. Large compound tumour. Died at the end of the week. Present, Dr. H. Roe, Mr. Holt, and others.

Miss K.—Large and slightly adherent tumour. Present, Dr. Protheroe Smith, Mr. Streeter, and others. Complete recovery.

——. Large tumour, with very short pedicle. Present, Dr. Rigby, Mr. Skey, and others. Complete recovery.

b. *Cases in which the Tumour could not be removed.*

Mrs. P.—Very large malignant mass, inseparably adherent posteriorly. Extreme suffering from distension by solid matter, and rapidly approaching death, rendered the attempted operation justifiable. Died on the following day. Present, Dr. Rigby and others.

c. *Cases in which small incisions have been made, either to determine the existence of adhesions, or to remove unusually viscid secretions.*

Mrs. P.—Small incision, then tapped. Present, Dr. Ansell, Mr. May, and others. Is now living,

——. Small incision, then tapped. Present, Dr. H. Roe, Dr. Wilks, and others. Is now living.

Miss ——. Incision of rather larger size. Present, Mr. Coulson, and others. Lived two years.

Mrs. C.—Small incision, to ascertain character of adhesions, and of small tumour attached to the cyst, as well as to evacuate contents. Present, Mr. Huxtable and others. This patient was advanced in life, and exhausted by suffering. Lived six weeks.

Miss G.—Incision. Present, Mr. Streeter, in whose practice it occurred. Lived more than two years.

Mrs. B.—Incision, then tapped. Present, Dr. H. Roe, and others. Lived nearly three years.

Miss B.—Incision, then tapped. Present, Dr. Murphy, Dr. Snow, and others. Lived six months.

Miss B.—Incision, then tapped. Present, Dr. Rigby, Mr. B. Holt, and others. Is now living.

A. B.—Incision, then tapped. Tapped several times afterwards. Present, Mr. Chance, and others.

——. Incision, then tapped. Tapped afterwards. Present, Dr. Rigby, Mr. Holt, and others.

Mrs. S.—Incision, then tapped. Tapped many times afterwards. Present, Mr. Holt.

Mrs. C.—Incision, not tapped. Afterwards tapped, and died. Present, Mr. Streeter.

Miss G.—Incision, to ascertain adhesions, and to remove very viscid contents. Present, Mr. Smith, Mr. Holt, and others. Died next day from bursting of a large hepatic abscess into peritonæal cavity, as proved by autopsy.

Mrs. C.—Small incision, then tapped. Subsequently tapped, and was living more than a year afterwards.

S. R.—Incision; colloid. Present, Mr. West and pupils. Was living after the lapse of ten months.

Mrs. W.—Small incision, then tapped. Present, Mr. Huxtable. Tapped many times afterwards.

L.—Incision, then tapped. Present, Dr. H. Roe, and others. Was living a year afterwards.

Miss S.—Incision, then tapped. Present, Mr. Mosgrove and others. Now living.

Conclusion.—I have thus extirpated large ovarian tumours in thirteen cases, of which number nine were successful, four unsuccessful; in one case the tumour could not be extirpated, and the patient sank. In eighteen other cases, I have made small incisions, as a means of diagnosis or relief, and in no case did a bad result ensue from such incisions, leaving a total of thirty-two cases, in the treatment or investigation of which the abdominal cavity has been incised. —*Ibid.*

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31. *On the Treatment of Sprains of the Ankle.*—M. Baudens observes that, judging by the frequency of the occurrence of this accident, its treatment ought to be well understood and successfully practiced; but that this is in fact far from being the case, and he is therefore desirous of making his own plan of treating it, by the cold-bath and gum bandage, more extensively known.

The indications are, first, to prevent or remove inflammation, and then to secure immovability to the distended or lacerated parts, until they have recovered their power, the patient being at the same time allowed the use of the limb. For the purpose of subduing inflammation, numbers of leeches are usually applied, and then an emollient cataplasm; and M. Baudens feels convinced that it is in consequence of such treatment that degenerated sprains so often augment the number of amputations in hospitals. By free leeching of a joint, the seat of sprain, two mischievous effects are produced. In the first place, the pain, which is the first of the series of symptoms of inflammation after sprain, is increased by the leech-bites, in place of being mitigated; and, in the next, the increased afflux of blood towards the part is encouraged instead of being repelled. M. Baudens, on these grounds, strictly forbids the application of leeches in all surgical maladies attended with acute inflammation, while he often derives most excellent aid from their employment in chronic inflammations; thus, by the induction of a temporary congestion, giving a fillip to the too languid action of the part. When blood need be taken in sprain, he abstracts it by venesection, although probably both the profession and the public, from the force of habit, would tax with ignorance any one who neglected the use of leeches. As to emollient cataplasms, they favour in place of opposing the afflux of fluids to the part, while the long maceration the joint has been thus submitted to deprives it of its elasticity, gives rise to a pasty *engorgement*, and predisposes to the formation of white swelling.

M. Baudens has pursued his own plan of treatment now for twenty years, and under it his patients have been enabled to resume their trying military duties in a very short time. He is not the first who has employed cold water in the treatment of sprain; but his originality consists in trusting to it alone, and continuing its application for so long a period. His plan of employing it, contrasted with that of his predecessors, may be thus summed up:—1. *Period of the application.* Cold has usually been thought desirable only when it could be resorted to very shortly after the accident; but he applies it not only immediately, but also several hours or days after the occurrence, or even in chronic sprain—whenever, in fact, there is a *morbid degree of heat to abstract.* 2. The local bath has never been ordered by others for longer than five or six hours, although some practitioners, since his first publication on the subject, have ventured to extend it to twenty-four. In certain of his cases, however, immersion has been continued for eight or ten days, and, in one example, for fourteen days; while in no case has it been less than for two. 3. *Mode of application.* The vessel containing the water is brought to the bedside of the patient, so that he can conveniently place his leg in it, having the heel resting on a sponge at the bottom, the leg and thigh being supported by cushions, so that the position may be maintained for as many days as required, In the vessels used at the Val-de-Grace, the water reaches as high as the middle of the leg, and is changed about every three hours in order to keep it sufficiently cool. Spring-water is usually employed, and if the inflammation is intense, ice is added. A purgative is given, and, if indicated, one or two bleedings are resorted to. 4. *Effects.*—One of the first of these is the cessation of pain, which sometimes occurs at once, and at others in an hour or two. From the moment the foot is placed in the bath, the swelling becomes stationary, and soon after, with the heat and redness, decreases. About the fourth or fifth day the part becomes wrinkled like the hands of a washerwoman; and usually about the third or fourth day the patient finds the water too cold, and then the limb is removed from it—the period for doing this being regulated by the patient, he being told to keep it in only as long as he derives comfort from so doing. Few of the patients suffer from any general reaction. *Gangrene* has been said to have resulted from this application, but the author has never met with such a case. The patient sometimes persists in keeping the limb in water after the dispersion of the heat and pain, and the consequence is the production of engorgement of the joint, a tense state and dark colour of the skin, together sometimes with darkish lines—precursory signs of congelation in fact—on seeing which the joint should be enveloped in a fomentation of elder-flowers and poppy-heads at the temperature of the atmosphere. The objections which have been urged, from the fear of producing

repercussion, are quite theoretical and unfounded. It is, in fact, only the *excess* of *morbid caloric* that is abstracted.

Gum-bandage.—When the inflammation has been subdued, all the depressions, in the vicinity of the joint are filled with wadding, and a bandage carefully and equably applied. This is well moistened by means of a brush with very thick gum, which in a short time imparts to it almost the hardness of wood. After this has been worn for twenty-five or thirty days, it is removed, and the joint slowly and gradually exercised; for want of which precaution many patients (especially those treated by leeches and poultices) suffer all the symptoms of a sub-inflammation of the white tissues of the joints, even for years.—*Brit. and For. Med.-Chirurg. Rev.*, Oct. 1850, from *Gazette des Hôpitaux*, 1850, No. 506.

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32. *Dislocation of the Scaphoid Bone of the Foot.*—Dr. Walker records in the *Provincial Med. and Surg. Journ.*, Oct. 16th, 1850, the following example of this very rare accident.

"On the 10th of June 1850, a stone mason, aged 40, and of a spare but sinewy form, in stepping from the top of a wall, eighteen feet high, to another about a foot lower, over an intervening space of about two feet, advanced his right foot, but stepped short, his toes only resting upon the wall, his whole weight being, in the act of stepping, thrown upon the right leg. The foot, as he says, "bent upwards, and something gave way." Falling down between the two walls, he found himself on the ground on his hands and knees, not hurt, as he conceived, by the fall, but quite unable to work, and his foot in great pain. He was carried home, and I saw him next day. He was in bed, and on examination my opinion of the case entirely coincided with that of Mr. Hanbury, our excellent house-surgeon, who had previously visited him. We found a bold projection on the dorsum pedis, in the situation of the os naviculare, and a corresponding depression beneath, where, in the normal condition, the tuberosity of this bone forms a distinct projection. Over the displaced bone the skin was tense and red, and over this point there was a good deal of pain on pressure. He could bend and extend the ankle-joint without difficulty or much increase of pain. I at first tried to reduce the bone by firm pressure with the thumbs, but it felt firmly fixed in its abnormal position, and I could not move it.

"I then requested Mr. Hanbury to press the foot downwards, whilst I attempted to return the bone to its position between the astragalus and cuneiform bones, and with an audible snap it returned, and the deformity disappeared.

"I then merely directed the foot to be kept quiet and fomented; but two days after, finding that the bone felt loose and easily movable, with a tendency to slip upwards, occasioning the peculiar appearance of a slight dimple or hollow in place of its natural projection, a plaster and roller were applied.

"He was confined to the house for three weeks. He then returned to his work, but continued slightly lame for about a month after. This morning (Sept 16th) I find, on examination, no remaining appearance of injury; he has no pain, and the motions of the foot are perfect."

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33. *Ununited Fracture of the Tibia of twenty-four years' standing successfully treated.* By R. W. Tamplin.—Patient a young woman, aged 25; leg broke at lower-third in infancy. The fracture neglected for some years, and then a variety of treatment adopted to promote union, without success. The case was given up as hopeless, and amputation recommended by surgeons of eminence. When Mr. Tamplin saw the patient, the leg was two inches and a half shorter than the other, the upper portion of the tibia projecting pointedly forwards, and riding over the lower third; there was free movement at the point of fracture. Mr. Tamplin had an instrument so made that the thigh could be firmly grasped above the condyles of the femur, the foot below having a screw, by means of which the distance between the knee and the foot could be gradually increased. This was applied on the 31st of July, 1849, the leg kept horizontal in the extended position. Gradual extension was now commenced, and continued for four days. So much pain was occasioned in the gastrocnemius that it was found necessary to divide the tendo-Achillis. From this time the leg became gradually and easily elongated, and during the extension a steady continued

pressure was kept up on the tibia, above the point of fracture, and counter-pressure at the back of the leg, just above the ankle-joint. This treatment was persevered in unremittingly until the 9th of January, 1850, without interruption to the health, when the leg was found to be of equal length with its fellow, and the bone retained its position unassisted. Common splints, with a boot attached, were used to support the limb. On the 26th of February she could raise the leg to the horizontal position. On the 3d of April she could stand and walk without pain or sign of motion at the point of fracture. Since that time had continued to use the leg freely; could walk up and down stairs; her general health had improved, and there was every reason to believe that a perfect cure had been effected.—*London Med. Gaz.*

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34. *On Primary and Secondary Amputation.*—Dr. Restelli, one of the surgeons in chief of the Sardinian army, in relating the surgical history of the late campaign, confirms the opinion now generally entertained by military surgeons of the preferability of primary amputations by the following statistical statement, which, although on a small scale, is very conclusive. He says that whenever an operation becomes recognized as one of undoubted necessity, he believes it the best practice to perform it at once (that is, within thirty-six hours after the injury) in place of waiting the development of fever, inflammation, and suppuration, with the consequent greater liability to phlebitis, purulent infection, tetanus, visceral inflammations, &c., dangers with which the simple wound from amputation is scarcely to be compared. Acting upon these principles, he obtained the following results:—

IMMEDIATE AMPUTATIONS.				CONSECUTIVE AMPUTATIONS.			
		Recovered.	Died.			Recovered.	Died.
1	At the hip-joint .	1	0	6	Middle of the thigh .	1	5
7	Middle of the thigh .	5	2	1	At the upper third .	0	1
4	Upper third of thigh	2	2	1	Upper third of leg .	0	1
3	Upper third of leg .	2	1	7	Upper third of arm .	2	5
10	Upper third of arm .	9	1	2	Shoulder-joint .	1	1
1	Shoulder-joint .	1	0	3	Forearm . .	2	1
26		20	6	20		6	14

Thus in the immediate amputations there was a mortality of about 24 per cent. and in the consecutive ones of 70 per cent.; the fatality of these last especially referring to the lower extremities.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1850, from *Annali Omedei*, vol. cxxx.

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35. *Surgical Operations, in reference to the Employment of Chloroform.*—M. Boyer considers that surgical operations, in their relation to chloroform, may be thus arranged:—

1. Those in which it is a powerful auxiliary, facilitating their execution, as in the reduction of dislocations and strangulated hernia. 2. Those which are exceedingly painful, in which chloroform diminishes suffering, but does not render the operation more easily executable. They are very numerous, and this is the only point of view in which the public regards the advantage of anæsthetic agents. 3. Those in which it may become an obstruction or preventive to their execution. Thus, a patient of M. Boyer, on whom he was operating for lithotrity, became so restless under chloroform that he could not continue until the anæsthetic influence was withdrawn. 4. Those in which it may prove dangerous, as in cataract. So, too, in tedious and delicate operations performed in the vicinity of important organs; as, for example, ligature of the carotid, during which any indocility of the patient might lead to the wounding of important veins, and in some of the cutting operations in the mouth. 5. Those of a trivial character, in which chloroform is a superfluity, as the slight advantage obtained from its use does not generally compensate for the disagreeable effects produced by the inhalation, such as the smell, headache, and the kind of intoxication that results. 6. There are certain contra-indications to its use in all cases, as acute or chronic affections of the brain, liability to cerebral congestion, great debility, &c. Its employment must, therefore, not

be regarded as a mere matter of course; and surgeons, in order to prevent abuse, may often have to discountenance it.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1850, from *Gazette des Hôpitaux*, No. 51.

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36. *Origin of the Epigastric and Obturator Arteries by a common trunk from the Internal Iliac; with an inquiry into the amount of danger occasioned by various positions of arteries in the ordinary operations for Femoral and Inguinal Hernia.* By P. Redfern, M. D. (*Monthly Journ. Med. Sci.*, Sept. 1850.)—In this interesting paper, the author, after describing a case met with by him, in which the epigastric and obturator arteries arose by a common trunk from the internal iliac, and referring to two similar cases, one recorded by Hesselbach, and the other by Dr. Monro, discusses the surgical relations of these deviations.

He reviews, 1st, those varieties of position in which a vessel of considerable size appears likely to be exposed to danger in the performance of ordinary operations, and the frequency of like positions; 2d, in what proportion of such operations vessels of importance have been injured in actual practice, and 3d, the probable result of future cases of injury to these vessels, by a reference to the termination of those which have already been made public.

The conclusions which Dr. Redfern draws from his investigations are :—

1st. In every possible variety of inguinal rupture, the stricture ought to be divided directly upwards, as by so doing there is not the slightest risk of hemorrhage.

2d. The probability of the occurrence of hemorrhage is much greater in operations for femoral than for inguinal hernia, as the epigastric, obturator, or internal circumflex artery may be divided in exposing the sac; and the obturator, epigastric, or a large anastomosing branch, may be injured in the division of the stricture.

3d. The varieties in the arteries named are sufficiently frequent to render them of great surgical importance, and that variety is most important in which the vessel is displaced inwards, by the descent of a femoral hernia, and becomes tensely stretched over the front and inner side of the neck of the sac.

4th. The risk of hemorrhage is not lessened by dividing the stricture of a femoral hernia in any other direction than inwards or upwards and inwards, but it is very much diminished by dividing as few of the tense fibres of the edge of the ring as possible, by avoiding a sawing motion, and by pressing the edge of the knife rather upon the anterior surface than directly on the edge of the fibres constituting the stricture.

5th. In a male, whose testis has passed into the scrotum, the spermatic artery may be wounded, and the testicle lost, by dividing the stricture at the neck of the sac of a femoral hernia upwards, and, therefore, this method of operating ought to be relinquished.

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37. *Aneurism of the Femoral Artery, Ligature of the External Iliac.*—Henry Smith, Esq., records in the *Medical Times* a case of aneurism of the femoral artery in a man 37 years of age, in good health and temperate habits. On the 7th of August, Mr. S. applied a ligature to the external iliac, and the patient made a rapid recovery. The ligature was readily withdrawn on the twentieth day, and in five weeks after the operation the wound had healed with a firm and healthy cicatrix.

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38. *Ligature of the Femoral Artery for Popliteal Aneurism.*—James Drummond, Surgeon, Dundee, records (*Monthly Journ. Med. Sci.*, Nov. 1850) a case of popliteal aneurism, on right side, in a seaman, 33 years of age, in which he successfully applied a ligature. The incision, except immediately around the ligature, had united in forty-eight hours; the temperature of the limb, which for the first two days was slightly lower than its fellow, was restored on the third day, and the ligature separated on the thirty-first day.

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39. *On the Employment of Forced Flexion for arresting Hemorrhage in Wounds of the Palmar Arch.* By M. E. Durwell.—A woman fell from a ladder, having a

bottle in her hand. The bottle was broken, and fragments pierced the palm. M. Durwell, on arriving at the poor woman's cottage, found the palmar arch wounded; and he had no means of securing the artery. While controlling the hemorrhage by pressure on the brachial artery, the following sentence in M. Malgaigne's *Anatomie Chirurgicale* occurred to his mind: "The only points at which obliteration of an artery can be obtained by position alone, without the aid of external compression, are at the bend of the arm and knee—a fact which is of great importance in reference to the arrest of hemorrhage." Acting upon this statement, M. Durwell immediately bent the arm on the forearm at an acute angle; the hemorrhage was instantly arrested. Advantage was taken of the circumstance to effect a definite cure. The arm was retained in its flexed position by bandages, so that the pulsation of the radial artery was completely intercepted. The wound of the hand was treated as an ordinary wound, and, for the sake of precaution, compresses were laid over the course of the arteries of the forearm. The cure progressed favorably. On the third day, as the patient complained of the restraint of the posture, the arm was slightly extended, and it was noticed that a small portion of florid thin blood oozed from the wound. The arm was restored to its flexed position, and in a short time the vessels and the external wound had perfectly healed.

In this manner a wound, usually regarded as of a very serious character, was safely and speedily cured by a proceeding as simple and unobjectionable as has ever been proposed. It must be attended with success when employed in analogous cases, and, from its simplicity, should be tried in the first instance in every case. M. Durwell observes justly that it would be rash to make a more general application of a single fact, as there may doubtless occur complications, rendering its employment impossible or unadvisable; but, at the same time, he adds that this principle may be found, by further experiment, to be useful on other occasions, for the obliteration of the popliteal and humeral arteries. This principle he lays down in the proposition—"that in most arterial lesions of the forearm and leg, prolonged forcible flexion supersedes the ligature of the vessels."—*Prov. Med. and Surg. Journ.*, Nov. 13th, from *L'Union Médicale.*

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40. *On Hospital Gangrene.* By Prof. Restelli.—Between Sept. 1848 and Feb. 1849, hospital gangrene prevailed in the overcrowded Military Hospital of Alessandria to a terrible extent as a complication of wounds, and especially of gunshot wounds; so that above 400 cases came under Dr. Restelli's care.

Owing to the crowded state of the hospital, no classification of patients could be observed; but this gave the author the opportunity of observing that individuals suffering from contagious diseases (as syphilis) were more easily attacked by the gangrene, and that it rapidly produced in them dreadful ravages. No general symptoms usually preceded the alteration of character in the wound; and in some cases the disease continued local in its manifestations, but in several others, remittent fever was present, increasing with the progress of the disease. In some cases, there were daily paroxysms of fever and profuse sweating, simulating an intermittent fever, with which various nervous symptoms, especially those of a convulsive character were conjoined, and were of very bad omen.

In order to prove the contagious character of the disease, the author, most unjustifiable, as we think, inoculated various wounds occurring in different temperaments with some of the matter, and also inserted it subcutaneously in healthy parts. Other proofs were found in its being communicated from bed to bed during the overcrowding of the hospital, and on its having been propagated in the town by means of a dirty knife used in an operation. The author, indeed, regards the propagation of the disease as entirely affected by contact, although he allows that the bad state of the air of a crowded hospital increases the virulence of the disease. He does not believe, however, that any contagious principle capable of propagating the disease is absorbed into the system; and thus, when in consequence of the ravages of the disease, operations or amputations were required, the new surface did not take on gangrenous action, providing care were taken to prevent gangrenous matter obtaining access to it. Taking this view of the disease, it is to local treatment he looks

for a curative agent, and this may be had recourse to at any stage, if the part retains sufficient reactive power. After trying experiments with numerous caustic substances, as the strong acids, &c., he has come to the conclusion that the best application is a *solution of caustic potass*, which he considers to act not as a mere caustic, but also by neutralizing the virulence of the poison itself. On the first day, however, he applies pieces of caustic potass in substance to the wound, endeavouring to penetrate into all its sinuosities. Next day the wound is dressed with a solution of ℈j ad ℥j of water, and every day the strength of the solution is diminished by four or five grains, to the fifth day, when the wound is simply dressed. The author declares that even the worst cases went on well after this plan was put into practice. In the subsequent treatment of the wounds, absorbent powders, as charcoal, and especially carbonate of magnesia, were of very great service.—*Brit. and For. Med.-Chirurg. Rev.*, Oct. 1850, from *Annali Omedei*, vol. cxxx.

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41. *On Dry Gangrene.*—Dr. De Martini observes that the seat and cause of progress of spontaneous dry gangrene have not been sought for by pathological anatomists in the primary elements composing the structure of the affected parts, but in some distant points from the centre of the alterations. He is of opinion, however, that all the tissues of a part suffering from it are the seats of a *minute capillary injection, and a total and primary coagulation of the blood.* The most delicate capillaries are injected, they become obstructed with fibrinous coagula, and a portion of the colouring matter is effused around the anastomotic points. The papillary body loses its moistness and rose-white colour, and becomes a collection of black and hard asperities, rising from a dermis that looks as if it were carbonized. Observed through a microscope, these minute vessels seem as if injected by a substance which has hardened within them; and, in fact, so obstructed are they that when divided they do not empty themselves any more than as if they were filled with so much wax. In the adipose layer, muscles, and, indeed, all parts that the gangrene implicates, the same minute capillary injection and coagulation is observable.

In reference to the causes of this complete coagulation in the capillary circulation, the author expresses his opinion that insufficient attention has been paid to *primary lesion of the capillary innervation.* The acute, burning pain preceding the development of the gangrene, the greater disposition of the paralyzed extremity to become attacked, the commencement of the process by a complete arrest and coagulation of the blood in the capillaries (the circulation in which is under the influence of the ramusculi of the sympathetic), and the nervous disorders which frequently precede or accompany the development of the affection, lead to the belief that a primary paralysis of the capillary innervation may frequently play an important part in the induction of this gangrene.

In a *chemical* point of view, the metamorphoses which accompany dry gangrene are quite special. In gangrene, the consequence of inflammation, there is rupture of capillaries and effusion of blood, and thence a more intimate combination of its oxygen with the elements of the tissues. The effused blood coagulates, the globules and darkened hematose dissolve, and the whole organic materials of the fluid pass into a state of decomposition, which is communicated to the surrounding tissues. In dry gangrene, coagulation takes place without prior inflammation, and at the various anastomotic points, effusions forming also coagula are likewise observed. No solution of the blood, no decomposition or disruption of tissues, takes place. The structure of these undergoes little or no alteration. The physical characteristic of *inflammatory gangrene* is the changing of the organic solids into a soft, pultaceous, decomposing mass; while that of *dry gangrene* is the changing of the humours and soft parts into dry solids. The smell of rancid bacon, which the part emits in dry gangrene, and the readiness with which *mycodermes* are developed on the surface, would seem to show that the process is one of slow combustion—*eremacausis*, a process at first excited by the oxygen of the blood, and when that ceases to be obtainable, by that of the air. A foot suffering from dry gangene, which had been amputated, was introduced under a bell containing air, together with some pieces of caustic potassa. In three days the whole of the oxygen had become consumed,

and the potass converted into carbonate. The process of *eremacausis* could not be set up in organic matter without prior enfeeblement of the vital affinities of its elements, which are dependent upon the peripheric innervation.

From what has been said, it is evident that the organic changes produced in dry gangrene are incurable, for the coagulated blood cannot resume its organic liquid state, nor can the chemical metamorphosis, affected by means of oxygen, be arrested. But this chemical process does not limit its operations to the gangrened part, since the facility of absorbing oxygen possessed by a part in a state of *eremacausis* is communicated to all matters in contact with it, so that the entire body might become involved in this slow combustion, originating in a part already dead. The indication, therefore, is not to lose time in employing internal remedies, which are always useless, but to at once remove the limb beyond the gangrened part, and then resort to means of rational treatment. Does not the *vis medicatrix* of Nature, which preserves the whole body by a spontaneous separation of a part, teach us this lesson?—*Brit. and For. Med.-Chir. Rev.*, Oct. 1850, from *Omedei Annali*, vol. cxxvi.

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42. *On Fungous Tumour of the Rectum in Children, attended with Bloody Discharges.* By M. Leclayse.—M. Martin has already directed attention to the affection as it occurs in the adult, producing discharges which are mistaken for those from hemorrhoids. The first case occurred in a child æt. 5, about whom the author was consulted in consequence of hemorrhages which occurred during a prolapsus ani, and which arose from an excrescence that he at first mistook for hemorrhoids. Examining it more closely, he found it was a spongy vegetation, not unlike a portion of the placenta, which protruded from beyond the sphincter when the child went to stool, and was quite insensible to the touch. As the hemorrhage had been considerable, the fungus was touched with the nitrate of silver whenever it protruded; and owing to its softness, four or five applications, at intervals of several hours, sufficed for its destruction. In a second case, a girl æt. 8 had become much reduced by the quantity of blood she had lost during several weeks; and a fungous tumour, about the size of an almond, was easily removed in the same way. A third case occurred in an infant six months old, in whom efforts at stool protruded a tumour the size of a pea, which bled. The author believing it to be the germ of the fungous tumour, also treated it with caustic.

M. Leclayse believes that this affection is often mistaken for hemorrhoids; and especially when the bleedings are said to be due to internal piles. The caustic could not be applied very high up, but as the bleeding has only occurred on the protrusion of the tumour, this has been easily reached, the application being successful even when the base of the tumour could not be attained.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1850, from *Rev. Médico-Chirurg.*, tom. vii.

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43. *Gonorrhœa treated with Acetate of Potash.*—Mr. Hilton has endeavoured to arrest gonorrhœa without the aid of cubebs, copaiba, or other means usually adopted. The medicine he employs is acetate of potash in half-drachm doses. The following cases are selected to exhibit the results of this simple treatment:—

The first case refers to a man, aged thirty, a tailor by trade, who, when admitted, July 24th, into Samaritan ward, had been affected with a discharge for a week; the urine was very acid, and the scalding intense. The day after admission, Mr. Hilton prescribed half-drachm doses of acetate of potash to be taken three times a-day. Five days afterwards, the scalding was relieved, the urine being still acid; on the thirteenth day the scalding, though decreased in intensity, continued, and the urine remained acid; the acetate was therefore ordered to be taken every fourth hour. On the sixteenth day the scalding was trifling, and the urine acid; on the eighteenth the urine became alkaline; the scalding had disappeared, and the discharge had completely ceased for some days. The patients are always kept in the house a little time after its cessation, for fear of a relapse; and on the twenty-third day the patient was quite well, after having taken the acetate of potash three times a-day for thirteen days, and every four hours for five days.

The second case is that of a labourer, twenty-seven years of age; he had

had a gonorrhœal discharge for three weeks when he applied for admission. The treatment began in the same ward (Samaritan), on the 24th of July, as in the preceding case, and the acetate of potash, in an aqueous menstruum, was likewise ordered to be taken three times a-day. The salt is also given with advantage in camphor mixture, and Mr. Hilton often supplies the patients with the acetate in powder, desiring them to dissolve it in water themselves. Here, however, no very material improvement took place for the first fifteen days, when the scalding became less, and the discharge began to diminish in quantity, the urine being acid. Mr. Hilton now ordered the same doses to be taken every fourth hour. On the nineteenth day the scalding continued, the discharge was less, and the urine slightly alkaline. On the twenty-second, the urine became again acid, though the patient was taking the acetate every fourth hour. At this time diarrhœa set in, and the patient was precluded from continuing the acetate of potash. On the twenty-eighth day after admission, however, the use of the salt was resumed; it was taken every four hours for eleven days, when the scalding and discharge were entirely subdued. It should, however, be noticed, that even at this period the urine remained somewhat acid.

Mr. Hilton was led to give the acetate of potash a trial in cases of gonorrhœa from the following considerations: The urethra is in this disease in a highly inflammatory state, and the urine very acid; it is clear that the latter fluid in passing over an inflamed surface must tend to irritate it much, and retard the diminution of the inflammation. The acetate of potash, by its tendency to render the urine alkaline, will therefore remove one of the obstacles which lie in the way of the cure. This same salt has likewise most undoubted depurating properties, and its antiphlogistic powers are very remarkable. Its administration, therefore, will have the double advantage of rendering the urine less acid and irritating, and of reducing inflammatory action all through the system, and as a consequence in the urethral mucous membrane.

Mr. Hilton does not deny the modifying properties of copaiba and cubebs, but he considers that the acetate of potash renders great service in those numerous cases where, from many different circumstances, neither copaiba nor cubebs can be taken. He often uses the latter therapeutical agents when the disease has been subdued by the above-named salt; a few doses of copaiba then complete the cure, and are likely to prevent relapse.—*Lancet*, Nov. 1.

MIDWIFERY.

44. *On the Causes of the Non-success of the Cæsarian Operation.*—Dr. Roubaix, of Brussels, has published (*Encyclographie Médicale*, June,) an elaborate memoir, in which he passes in review various questions connected with this operation. As, for instance, whether the danger of the operation consists in the incisions themselves; whether it is the result of some error in the operative proceedings, or is induced by the circumstances under which the operation is performed; and, lastly, whether, by any modification of operation, greater success can be insured? These are the problems which the author attempts to solve:—

1. *Does the danger of the operation depend on the dangerous consequences of the incisions?* In answering this question, the author divides the tissues incised into three categories—the first comprising the abdominal parietes, the second the peritoneum, the third the womb.

Respecting the first of these he observes that little need be said, as wounds of the integuments of the abdomen do not differ from ordinary wounds; the danger is in the incising the peritoneum and womb.

He further states that, judging by the analogy of other operations in which the peritoneum is interested, we cannot consider the danger to be in the incision of the membrane, as in the case of hernia, and in many severe accidental wounds, the peritoneum is often extensively injured without bad consequences. In the lower animals, the operation of spaying is another instance in point. So also wounds of other serous membranes, as the pleura, are comparatively harmless, as long as the important organs of the chest are uninjured. In the

operation for cataract, again, the serous membrane of the eye is perforated without danger; and the same may be said of hydrocele. On these grounds, the author considers that the danger of wounds of serous membranes has been greatly exaggerated, and he thinks this arises, probably, from the intense pain which inflammation of these tissues gives rise to. He concludes, upon the whole, therefore, that the dangers of the Cæsarean operation are not due to wounding the serous membrane abstractedly considered.

Is it, he next inquires, the incision of the uterine parietes which causes the risk? Here he reminds us that it is a complicated and delicate organ which is wounded, and that it consists of serous membrane, muscular fibre, vessels, nerves, and mucous membrane. But muscular fibres, nerves, and vessels are wounded in amputating without similar risk; and no surgeon hesitates to incise the mucous membrane of the mouth, nose, &c., wherefore he formally decides that division of the uterine tissues likewise is not the essential cause of the mortality of the Cæsarean operation. He next inquires—

2. *Is the danger of this operation due to error in its details, or in the subsequent dressing?* In replying to the second query, the author reviews the several steps of the operation after the following manner:—

Everything being ready, the surgeon first divides the abdominal integuments, and, accordiug, to general practice, when he arrives at the peritoneum, he makes an opening just sufficient to admit the finger, with which he raises the peritoneum while he makes the necessary incision. Now, in so doing, he not only admits air, but also the flow of blood into the peritoneal cavity. The surgeon in the next place opens the uterus, from which floods of blood pass into the abdomen. The amnios is next opened, and its contents are also effused. The infant and secundines are then taken away, the clots of blood removed, the intestines pushed back, and the external wound is closed.

We need only, observes the author, reflect an instant to perceive—1. That air enters the peritoneal cavity, and sometimes into the uterine sinuses. 2. That blood and liquor amnii, and subsequently the lochial discharge. may also escape into the same cavity. These are in the author's estimation the real causes of the fatality of the operation.

The evil consequences of the admission of air into the tissues are daily observed in surgery. A simple fracture is a trifling accident, but a compound fracture of the same bone is a serious affair. To open a large chronic abscess is often to give rise to a train of fatal symptoms; if, however, the admission of air be prevented, no such evils appear. It is the same in empyema and punctures of joints. Agaln, it is well known that to open ganglions is dangerous, but to rupture them under the skin gives rise to no unpleasant effects. Many other instances might be cited to exhibit the pernicious effects of the contact of air, but the multiplication of evidence would be useless.

The entrance of air into the uterine sinuses during the Cæsarean operation, the author thinks, has been too much overlooked. He observes that the anatomical construction of these sinuses is such as to favor the admission of air, which is one of the most dreaded contingencies of surgery. That the distance from the heart is no preservation, the author shows by referring to instances in which air has entered these sinuses during labour, in sufficient quantities to cause instantaneous death. Although this may not be the effect of the accident in the Cæsarean operation, sufficient air may be admitted to give rise to the most fatal form of phlebitis.

The effusion of blood into the peritoneal sac is regarded by the author as another obstacle to success, for whatever pains may be taken to remove it there will always be sufficient left to excite inflammation and its consequences. The presence of the liquor amnii also, though not so injurious as air or blood, is, nevertheless, to be considered as more or less injurious.

Thus the introduction of air, of blood, and of liquor amnii, are accidents which are in a measure inherent to the Cæsarean operation, and are sufficient, in the author's opinion, to explain a great portion of the ill consequences of this severe operation. He next inquires what amount of mischief may also arise from improper after-management. He alludes to the practice of applying refrigerants and topical astringents to the uterine incision, as well as the prac-

tice of preventing union by first intention, by which an additional cause of irritation is allowed, in the escape of the lochia into the peritoneum.

3. *Are the dangerous results of the Cæsarean operation in anywise attributable to the circumstances under which it is performed.*—This is the third query which the author proposes, and which he at once answers in the affirmative. It is a point of great consequence in all operations, if possible, to make incisions in healthy tissue, but in the Cæsarean operation this is often impossible, from the fact that the operation is too often delayed, and not attempted until the uterus is fatigued by useless efforts, and the soft parts are more or less bruised and injured by imperfect attempts to deliver *per vias naturales*. It is, therefore, he considers, a matter of great consequence as regards the probabilities of success, not to postpone the operation too long. Once that it is decided that delivery in the ordinary way is impossible, no time should be thrown away in fruitless endeavours to deliver.

4. We now come to the last question—*Is it possible to diminish the chances of failure by any modification in the operation?* This question also the author answers confidently in the affirmative, and gives the certain rules for accomplishing the safety of the patient. These are:—

1. To prevent the entrance of air into the peritoneal cavity and the uterine sinuses.
2. To prevent the effusion of blood and liquor amnii.
3. To make the incisions in such a manner that union by first intention may be encouraged as far as possible.
4. To take precautions against inflammation of neighbouring tissues.
5. To perform the operation at a favourable time.

All these rules are exemplified in the following description of the operation:—

Labour should be allowed to progress until the os uteri is well dilated and the membranes present. The rectum having been previously emptied, the patient is then to be placed on a narrow couch, with cushions under the loins, so as to cause the abdomen to project, the thighs are to be shortly flexed, and the bladder emptied by the catheter. Two assistants should be placed, one on the right side, and the other opposite the patient's left thigh. These two assistants are then to maintain a steady pressure on each side of the abdomen.

All being thus arranged, the operator, placed on the right side, proceeds to make an incision in the median line, from the umbilicus to within an inch of the pubes. When he arrives at the peritoneum, he is to open it carefully on a director, previously taking care that the assistants make so close a compression as shall as much as possible prevent the admission of air. The womb is now laid bare, and the next step is to incise it in the median line down to the membranes. If the assistants do their duty, the blood which now pours out should scarcely, if at all, penetrate into the peritoneal sac. Now is the moment to rupture the membranes, and allow the escape of the liquor amnii per vaginam. When it is thoroughly emptied the membranes are to be incised, and the child and after-birth carefully extracted.

When the hemorrhage has ceased, the parts are to be gently sponged, and sutures are to be inserted, the entire length of the incision, in the abdominal parietes, and compresses and bandages are to be so applied as to take off the traction upon the points of suture. The after-treatment should consist in catheterism, two or three times a-day, and careful regulation of diet. Vaginal injections should be avoided, for fear of the fluid gaining access to the peritoneum. If the wound does not heal by first intention, it must be healed on the ordinary principles as a suppurating wound.—*Prov. Med. and Surg. Journ.*, Oct. 30th, 1850.

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45. *Cæsarian Operation.*—M. Nimmo, Esq., of Dundee, relates (*Month. Journ. of Med. Sci.*, Sept. 1850) a case of impracticable labour, in which the Cæsarian operation was performed unsuccessfully to the mother, and gives the following table of forty-seven cases in which the operation has been performed in Great Britain and Ireland. Among these, only seven of the mothers were saved, and forty died. Of the children, twenty-six were saved, and twenty-one lost.

No.	Date.	Operator, or Authority.	Hours in Labour.	Causes.	Result to Mother.	Result to Child.	References.
1	1739	Mary Dunelly, midwife.	12 days.	....	recovered.	dead.	Ed. Med. Essays, vol. v. p. 439.
2	1737	Mr. R. Smith, Edinburgh.	7 days.	....	died.	alive.	Smellie's Mid., vol. iii. p. 423.
3	—	Professor Young, do.	....	....	died.	alive.	MSS. Lectures.
4	—	Ditto.	....	....	died.	alive.	Do.
5	1740	Dr. White, Manchester.	....	....	died.	dead.	Hull's First Letter.
6	—	Dr. Wood, Edinburgh.	....	....	died.	dead.	Do.
7	1769	Mr. Thomson, London.	24 hours.	....	died.	alive.	Med. Obs. and Enq., vol. iv. p. 261.
8	1774	Dr. Cooper, London.	2 days.	moll. ossium.	died.	alive.	Do. vol. v. p. 218.
9	1774	Mr. Chalmers, Edinburgh.	12 days.	....	died.	alive.	Hamilton's Outlines, p. 339.
10	1775	Mr. White, Glasgow.	....	....	died.	dead.	Hull's Letter.
11	1777	Mr. Atkinson, Leicester.	8 days.	moll. ossium.	died.	alive.	Hull, p. 67.
12	—	Mr. Clark, Wellingburgh.	3 days.	....	died.	dead.	Mem. Med. Soc. vol. v.
13	1793	Mr. Barlow.	5 days.	distortion.	recovered.	dead.	Med. Rec. and Res. p. 151.
14	1794	Dr. Hull, Manchester.	12 hours.	moll. ossium.	died.	saved.	First Letter, p. 162.
15	1795	Dr. Hamilton, Junr., Edinburgh.	2 days.	malacosteon.	died.	alive.	Outlines.
16	1798	Dr. Hull, Manchester.	10 days.	....	died.	dead.	First Letter, p. 172.
17	1798	Mr. Kay, Forfar.	3 days.	malacosteon.	died.	alive.	Hull's Letter.
18	1799	Mr. Wood, Manchester.	....	distortion.	died.	saved.	Mem. Med. Soc., vol. v.
19	1800	Mr. John Bell, Edinburgh.	....	....	died.	saved.	Med.-Chir. Trans., vol iv. p. 347.
20	—	Mr. Dunlop, Rochdale.	....	....	died.	alive.	Hull's Baudeloc. p. 134.
21	—	Mr. Wood, Manchester.	....	....	died.	dead.	Med. and Phys. Jour., vol. vi. p. 346.
22	—	Dr. Kellie, Leith.	24 hours.	....	died.	dead.	Ed. Med. and Surg. Jour., vol. viii. p. 11.
23	—	Mr. K. Wood, Manchester.	....	....	died.	dead.	Med.-Chir. Trans., vol. vii. p. 264.
24	1817	Barlow and Cort, Blackburn.	....	....	died.	alive.	Barlow's Essays.
25	1821	Barlow and Dugdale.	....	....	died.	alive.	Merriman, p. 317.
26	—	Dr. Henderson, Perth.	18 hours.	distortion.	died.	alive.	Do.
27	1820	Dr. Radford, Manchester.	34 hours.	distortion.	died.	dead.	Ed. Jour., No. 146.
28	1821	Ditto.	19 hours.	distortion.	died.	dead.	Do.
29	—	Ditto.	53 hours.	....	died.	dead.	Ranking, vol. x. p. 212.
30	—	Ditto.	....	....	recovered.	saved.	Do.
31	1849	Ditto.	3 days.	....	recovered.	saved.	Prov. Med. and Surg. Jour. for 1849.
32	1826	Mr. Crichton, Dundee.	6 days.	....	died.	saved.	Ed. Med. and Surg. Jour. for 1828.
33	1829	Dr. M'Keblin, Belfast.	....	exostosis.	died.	dead.	Do. for 1831, p. 352.
34	1827	Mr. Knowles, Manchester.	....	....	recovered.	dead.	Trans. of Prov. Assoc., vol. iv.
35	1829	Mr. Ward.	....	....	died.	dead.	Lancet, March 28, 1840.
36	1833	Mr. Greaves, Rockingham.	27 hours.	distortion.	recovered.	saved.	Lancet for 1833-34, p. 148.
37	1834	Dr. Montgomery, Dublin.	....	fibrous tumour.	died.	dead.	Dublin Jour., vol. vi. p. 418.
38	1843	Dr. Elliot, Waterford.	....	distortion.	died.	dead.	Letter to Dr. Churchill.
39	—	Dr. Whitehead, Manchester.	....	....	died.	alive.	Do. do.
40	—	Mr. Braid, Manchester.	....	....	died.	dead.	Ranking, vol. vii. p. 330.
41	—	Messrs. Bailey and Hardy.	....	....	died.	dead.	Do. do.
42	1845	Mr. Goodman, Manchester.	5 days.	distortion.	recovered.	saved.	British Obstetric Record, vol. i.
43	—	Mr. Lyon, Glasgow.	....	tumour.	died.	saved.	Ed. Mon. Jour., Dec. 1845.
44	1841	Mr. Ross, Invergordon.	....	....	died.	alive.	Do. for 1842.
45	1847	Mr. Skey, London.	....	distortion.	died.	dead.	Lancet for 1847.
46	1849	Mr. Campbell, Lisburn.	....	distortion.	died.	saved.	Ranking, vol. x. p. 330.
47	1850	Mr. Nimmo, Dundee.	17 hours.	distortion.	died.	saved.	Ed. Mon. Jour., Sept. 1850.

46. *Sudden death seven hours after delivery—air found in the Heart.*—Samuel Berry, Esq., records in the *Prov. Med. and Surg. Journ.* (27 Nov. 1850), the following interesting case of sudden death after a natural labour, concluded within the ordinary period, and unattended by the unusual loss of blood.

The patient, aged twenty-two, pregnant with her first child, was taken in labour on the 16th of June, and she was delivered the following evening of a male child. In twenty minutes after the birth of the child the placenta was naturally expelled, with but little loss of blood. At half-past eight o'clock she was very comfortable, and at ten o'clock was carefully put to bed. At eleven o'clock she took some gruel, and expressed herself "as feeling as comfortable as she could expect." Her husband then lay by her side. About one o'clock in the morning of the 18th, he became alarmed by her difficult breathing and feeling of faintness. He immediately sent for Mr. Dyer, but before he arrived, at two o'clock, she was dead. She lived seven hours after her delivery. The cause of death could not be accounted for, as there was no hemorrhage, and apparently nothing in the condition of the patient to prognosticate such a termination. A *post-mortem* examination was allowed, and was made early in the morning of the 20th. The body was well formed and nourished. A thick layer of fat existed in the abdominal coverings. Upon opening the abdominal cavity, the uterus was seen midway between the pelvis and umbilicus; the peritoneum covering it and the intestines was healthy, but pale. The stomach contained a small quantity of fluid. Liver healthy. The kidneys presented a granulated appearance, and the urine which remained in the bladder was ascertained to be, by the application of heat, slightly albuminous. Upon cutting into the uterus it was found empty, and the vessels where the placenta had been attached patulous. The vagina contained, at its superior part, a moderately-sized clot of blood. Within the chest, both lungs were congested, and contained scattered tubercles in their upper lobes. The heart was the size of a male heart, and apparently distended. Upon making an incision into it, *a gush of air escaped, and the organ became flaccid: no blood was found in its cavities.* About one ounce of serum was observed in the pericardium. The brain was healthy in every respect. No signs of decomposition existed in any part of the body.

Olivier, in the article "Air," in the *Dictionnaire de Médecine*, p. 73, when referring to Legallois' experiments on the inferior animals, in which he had found sudden death occur from air penetrating into the vena cava inferior and heart, by the uterine veins, in female pregnant animals, asks the following question: "Is it to a cause of this kind that we ought to attribute the sudden and unexpected death in females lately delivered, and where the autopsy disclosed nothing which could account for such a catastrophe?"

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47. *On a Stethoscopic Sign of the Detachment of the Placenta.*—M. Caillault states that repeated observation has shown him that, at the moment of the detachment of the placenta from the uterus, a peculiar sound is produced, feeble at first, increasing in intensity in proportion as the uterine contraction becomes more energetic, and then becoming less audible, until it disappears. He says it consists of a small cracking sound, very frequently repeated, and which may be roughly compared with the noise produced by running the nails over a straw-bottomed chair.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1850, from *L'Union Médicale*, No. 81.

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48. *Researches on Human Gestation.*—M. Coste read an essay to the Academy of Sciences, Paris (Oct. 21, 1850), in which he stated the results of his examinations of the bodies of women dying suddenly from violence, or by suicide, at different periods of gestation.

In the bodies of all women dying suddenly during or immediately after menstruation, examined by M. Coste, he has found the uterus lined by so thick a mucous membrane that, if its constancy had not proved it to be normal, it must have been regarded as a morbid product. This membrane was formed of glandules having orifices for the most part visible to the naked eye. In thickness it was equal to a fourth or a third of the muscular substance, and, in some instances, presented convolutions or folds pressed one against the other. In

extra-uterine pregnancies this mucous membrane was thicker, and its convolutions as large as those of the cerebral surface, having a breadth not less than ten millimetres (=1 centimetre, or .393 Eng. in.) From these facts, M. Coste considered it demonstrated that every time an ovum arrives at maturity in or is detached from the ovary of a woman, the uterine mucous membrane undergoes a change to prepare for its reception.

M. Coste has also examined the Fallopian tubes with a view to ascertaining whether in the pregnant state these remain free and pervious, or whether their uterine orifices become closed by a membrane which is to form the decidua. The result of his researches lead him to assert that their orifices remain open, and that the ovum falls into the cavity of the uterus, unless any abnormal cause obstructs its descent.

The changes which the ovum, &c., then undergo were thus stated by M. Coste:—

From the twentieth to the thirtieth day after conception, the uterine orifices of the tubes communicate freely with the cavity of the uterus, the mucous membrane is thickened. The ovum, instead of being free in the uterine cavity, is buried in the mucous membrane: so that, on first opening the uterus, the existence of pregnancy might be doubted. Consequently, M. Coste considers that normal pregnancy may be said to be at first interstitial growth. The ovum continues progressively enlarging, distending its covering of hypertrophied membrane: this distension going on, the ovum sensibly protrudes into the uterine cavity, attached by its opposite aspect to the base of the mucous membrane. The projecting portion becomes what anatomists have named the reflected decidua; that portion which remains attached to the muscular surface becoming the placental decidua; the rest of the mucous covering of the ovum becomes its parietal or uterine decidua. These three deciduæ possess the same organization as the mucous membrane whence they are derived, and it is only by the progress of development that they lose this character.

It is not, then, necessary, M. Coste remarked, to have recourse to the pseudo-membrane of Hunter, in order to explain the formation of these parts of the decidua: the development of the mucous membrane of the uterus is sufficient to explain the phenomenon. If these portions of the decidua be but modified mucous membrane, they should be cast off after delivery—and this is precisely what occurs; and the mucous membrane of the uterus is regenerated after all the débris of the decidua have been cast off with the lochial discharge.

This explanation of the nature of the mucous covering of the ovum, M. Coste considered, throws much light on certain otherwise obscure phenomena—*e. g.*, post-partum hemorrhages, the lochia, the propagation of puerperal inflammation by infection, and certain irremediable forms of sterility.—*Lond. Med. Gaz.*, Nov. 1850.

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49. *Examination of the Genital Organs of a young Woman who was assassinated during Menstruation.*—The researches of Bouchet, Bischoff, and others, have satisfactorily shown that menstruation coincides with the spontaneous maturation and discharge of ova. An observation by M. Jaüzer (*Medicinische Annalen*) adds another to the many instances already recorded which countenance the ovular theory.

The young woman who forms the subject of the present case commenced to menstruate four days prior to her murder. The *autopsy* was made sixteen hours after. The surface of the left ovary presented a dark red spot, surrounded by minutely injected capillary vessels; this spot was formed by a little globular mass embedded in the ovary. The mass in question was separated from the tissue of the ovary by a thin yellowish envelope, composed of fibres intermingled with fat globules. In close apposition to this membrane, a small irregular spherical body was seen, composed of cellular tissue and fat.

The right ovary contained two corpora lutea, the Fallopian tubes were swollen and contained a fluid resembling and composed of epithelial scales. There was no trace of an ovule, or of spermatozoids. The uterine mucous membrane was injected and had a velvety appearance: it was easily detached with the scalpel. It was evidently thickened and was covered with a thin mucous secretion.

From this case it appears that the uterine mucous membrane, at the menstrual period, assumes an appearance analogous to that which it puts on during gestation, especially as regards the development of the mucous follicles.—*Provincial Med. and Surg. Journ.*, Sept. 18th, 1850, from *Medicinischen Annalen.*

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50. *A new Japanese remedy for Sterility.* By E. Williams, M. D.—Amongst the many botanical remedies that popular experience has made common in Japan and China, is one that is believed to exert specific influence upon the uterus, more particularly in cases of sterility and checked menstruation; and from the numerous cases in which I have administered it with advantage, I am inclined to think it will become a valuable addition to our materia medica.

The tree from which the preparation is made that possesses the virtues ascribed to it is, no doubt, one of the order Ternstromaceæ of Jussieu, growing to the size of the English laurel, with leaves somewhat larger than the congou tea, and botanically it may be described as leaves lanceolate, alternate, serrated, downy on the under side, and emitting when bruised a strong odour resembling pulegium and sabina. Its properties are said to vary considerably with the age of the tree, likewise as to its being gathered at the full or wane of the moon, and as to the season of the year. It is perennial, and grows best in moist and sheltered places.

The mode of preparation is to take a quantity of the leaves, macerate them in as much rice-spirit (samshu) as will just moisten them for six hours; then express and give about a teaspoonful every hour, and two or three doses will invariably bring on the menstrual secretion, which can be maintained by a dose or two daily for any length of time.

Females in the healthy state are expected to menstruate in their eighth year in Japan and China, and should they not do so they are ineligible for betrothal; therefore recourse is had to the *key tu sing* with certain results.

To ensure its success, according to popular belief, the leaves must be gathered by a virgin, the while using certain cabalistic formulæ, at the full of the moon, and during the burning of a certain number of highly perfumed jop-sticks.

When required for the purpose of obviating sterility, the tree must be in its second year, and also gathered with certain prescribed formulæ at the wane of the moon, and equal parts of the root must be added to the preparation, which is made in the same manner as the preceding receipt.

That the root is aphrodisiac in its effects I have not the slightest doubt, as I have administered it to animals with obvious results, and without any ill-effects even to mules and castrati.—*Lancet*, Sept. 14th, 1850.

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51. *Drs. Barnes and Sachs on Anæsthesia in Midwifery.*—Dr. Robert Barnes has published in the *Lancet* for July 13th and 20th, 1850, a tabular analysis of twenty-seven cases of natural labour in which chloroform was administered, by Dr. Sachs, in the Berlin Lying-in Hospital, and has appended some comments on the use of anæsthetic agents in midwifery. He is a strong opponent of this practice; and, in seeking to substantiate his opinions by the facts contained in Dr. Sachs' cases, he sometimes slightly transgresses the bounds of legitimate deduction. Allowing, however, for his being occasionally led away by preconceived notions, his remarks are worthy of much attention. The registered opinions of the opponents of anæsthetic midwifery now before us are particularly valuable, as they are accompanied by a statement of facts, from which the reader may draw his own conclusions. The time is approaching, when, from a full and honest comparison of data, the proper mean of the use of anæsthesia in obstetric practice will become fixed. The antagonism of parties is rapidly subsiding; for now the intoxication by chloroform of all parturient women (as a matter of routine) has happily very few advocates, though an increasing number of sound practitioners are in favour of the practice in certain cases.

The following is the table of Dr. Sachs' cases, as drawn up by Dr. Barnes:—

TABULAR ANALYSIS OF TWENTY-SEVEN CASES OF NATURAL LABOUR, IN WHICH CHLOROFORM WAS ADMINISTERED BY DR. SACHS.

No.	Age, etc.	State of labour.	Effects of Inhalation on			Remarks.	Result to	
			Pulse and Respiration.	Uterus.	Sensation.		Mo.	Chd.
1	24, prim.	24 hrs., pains strong ev. 3 min.	P. r. from 78 to 102: f. to 90. Resp. r. fr. 24 to 36, f. to 28.	Pa. stopped for 7 min.; ret. weaker and seldomer than bef. inhal.; rec. strength when eff. of inhal. had gone off.	Loss of cons. and sens., screamed at passg. of head.	... ...	R.	R.
2	21, prim.	20 hrs., memb. rupt., pa. of uncertain freq. and strength.	P. somewhat dim. in freq.	1st inh.; pa. repeatedly stopped by renewed inhal. 2d. inh., compl. relax.; no percept. eff. on pains.	Groaning and weeping.	Quiv. of lips, shuddering dur. pains. Shiver. after del.	R.	R
3	21, prim. (twins) very plethoric.	20 hrs., memb. rupt.; hd. down; pa. ev. 2—3 min.; str. reg.	P. 90, somewhat incr.	Did not aff. contr., or retard del.	Groaned as in pain.	Some fever; headaches aft. del.	R.	B. alive, d. after.
4	29, mult.	Hd. ent. pelvis.	... ...	Seemed to incr. intens. of contr. and lab.	Shrieked at pass. of head: recol. nothing.	... ...	R.	R.
5	27, prim.	Hd. deep in pelv.; memb. rupt.; os ut. compl. dilat.	1st inh., P. 92, f. to 72; last inh., snortg. resp., 44; p. 68.	Pa. arr. at first; ret. of full str.	Groaning; at one time gt. restlessn. and tossing abt.; recol. nothing.	... ...	R.	R.
6	23, prim.	12 hrs.; hd. deep; memb. rupt.; pa. str., ev 2 to 3 min.	P. 82, f. to 76; r. to 80 on awakg.	Pa. compl. arr. 7 min.; then ret.	Cried out as shoulders passd. while still under chl.	... ...	R.	R.
7	33, mult. two. former lab., easily term. in 6 hours.	9 hrs.; hd. high; memb. not rupt.; os ut. not fully dil.; pa. short, ev. 4 min.	P. 82, r. to 96, f. to 80.	1st inh., pa. arr. 6 min. then ret. 2d inh. pa. arr. 9 min.; ret., and memb. broke. 3d inh., pa. arrest.	Groaned; tossed about just before birth. Recoll. nothing.	... ...	R.	R.
8	20, mult.; form. lab. quick.	Hd. near ext. parts, very strong pa. every 2 to 3 min.	P. 96, unalt.	Pa. not arrest.	... ...	... ...	R.	R.

No.	Age, etc.	State of labour.	Effects of Inhalation on			Remarks.	Result to	
			Pulse and Respiration	Uterus.	Sensation.		Mo.	Chd.
9	prim. (twins)	Memb. not rupt.; os ut. ptly. exp.; pa. moderate.	P. 81, r. to 102.	Pa. arr. 3 times, ret. weaker as chlor. went off.	Groaned; recoll. feeling pain.	Metritis and dysentery after deliv.	R.	B. alive, d. after.
10	25, prim.	Hd. near outlet; pa. strong.	P. 68, r. to 88 and 96, became irr.; resp. r. to 48, f. to 24	Lab. slightly arrested.	Groaned; recoll. nothing.	2 hrs. after del. had conv.; had been epil.; d. in 19 hrs.	D.	R.
11	33, prim.	Hd. above outlet, pa. good and str., ev. 2 to 3 min.	P. 96, then 90 to 86; resp. incr. to 36.	Pa. arr. for 11 min.	Uneasy movements during pa.	... ...	R.	R.
12	24, prim. (Absc. of labia.)	Hd. at outlet; memb. rupt.; os fully open; pa. ev. 2 to 3 min.	P. 112, f. to 88; resp. 60.	Pa. arr. for a time.	... ...	Perin. somewhat torn.	R.	R.
13	Prim.	Hd. at outlet, emerging.	... ...	Lab. not arrested.	... ...	... ...	R.	Putrid.
14	27, mult.	Hd. near outlet; memb. rupt.; pa. strong, freq.	P. 88, f. to 84—92; resp. 20, r. to 28—42.	Pa. compl. arr.; uter. relax.; ret. when chl. went off. Eff. on lab. complete failure.	Groaned and complained at ev. pa.	... ...	R.	R.
15	30, mult. (4 easy lab.)	Hd. at mid. of pelv.; memb. rupt.; os exp.; pa. str. ev. 2—3 min.	P. not affected; resp. accel.	Pa. delayed somewhat.	Answered quest., felt no pain.	... ...	R.	R.
	QUANTITY OF CHLOROFORM SMALLER; LESS DEGREE OF NARCOTISM INDUCED.							
16	Mult.	Hd. at outlet; pa. strong.	... ...	Lab. not delayed.	... ...	... ...	R.	Putrid.
17	22, prim. (period headaches.)	Hd. at outlet; memb. rupt.; pa. str., very painful, inclin. to delir.	... ...	Pa. slightly affected.	Groaned.	Strong shivering foll. deliv.	R.	R.
18	Sec. child. (1st labour painful.)	Hd. at outlet; memb. rupt.; pa. every 3 min.	... ...	Pa. stopped 5 min.; ret. as before when chl. discontinued.	Refused to renew inh.	... ...	R.	not mntd.

No.	Age, etc.	State of labour.	Effects of Inhalation on			Remarks.	Result to	
			Pulse and Respiration.	Uterus.	Sensation.		Mo.	Chd.
19	37, prim.	14 hrs. in lab.; hd. at outlet; memb. rupt. artificially; pa. reg. ev. 2 min.	P. 112, f. to 75, r. to 100; resp. 55, f. to 48.	Pa. slightly enfeebled at 1st inhal.	... ...	Perin. somewhat torn.	R.	R.
20	24, prim.	Hd. at outlet, pa. str. and freq.	P. 76, r. to 81; resp. 20, r. to 24.	Pa. slightly aff.	... ...	Perin. torn to ext. of 1 in.	R.	R.
21	21, prim.	Hd. at outlet.	... ...	Pa. weak at first; afterw. recov.	Hd. nearly born when chl. commenced. Under infl. 11 min.	... ...	R.	R.
22	26, 2d chd. (1st labour easy.)	Hd. at outlet; pa. str. ev. 1, 2, 3, 4 min.	... ...	Pa. increased.	Hd. at point of expuls. when chl. comm.	... ...	R.	R.
23	32, prim.	Hd. at outlet.	P. 104, r. to 120, f. to 96; resp. 32, 30, 48.	Pa. not affected.	Ditto.	... ...	R.	R.
24	27, 2d chd.	Hd. at outlet; pa. ev. 2 min.	P. 72, r. to 82; resp. 30, r. to 36.	Hd. quickly expelled.	Ditto.	... ...	R.	R.
25	24, prim.	Hd. approaching outlet; pa. ev. 2 min.	P. 60, r. to 68, then f.; resp. 30. r. to 38.	Pa. somewhat ret. at first; chd. b. 39 min. after inh. consc.	... ...	... ...	R.	R.
26	35, prim, (chron. bronc., anasa.)	Hd. near outlet.	P. 88, f. to 72; resp. snorting, deep, 30.	Pa. arr. at first.	Groaned during pa.	Perin. torn sev. lines.	R.	R.
27	20, prim.	Hd. appr. outlet.	P. and resp little aff.	Pa. slightly retarded.	... ...	... ...	R.	R.

We now proceed to give an abstract of the remarks made by Dr. Barnes on the various points of interest presented in the above table.

1. Effects of Chloroform on the Uterine Contractions. Dr. Barnes says: "Out of fifteen cases in which complete anæsthesia was induced, in eleven the uterine contractions were stopped, or enfeebled, and the labour consequently retarded. Out of twelve cases in which a minor degree of narcotism was induced, in eight the uterine contractions were retarded. The chloroform appears to have been given very cautiously; its administration was, in most cases, withheld until the membranes were ruptured, the os uteri fully expanded, and the head pressing on the perineum; in short, until the delivery was on the point of completion. Whenever inhalation is practised early in labour—that is, before the expulsive stage is advanced—uterine contraction is always im-

paired, and labour retarded. If the inhalation be deferred to a later period, the arrest of contraction in the womb is not so constant. So great is the accumulated excitability of the spinal marrow at the epoch of parturition—so intense is the excitation of the esodic nerves, distributed in profusion about the orifice of the vagina, by the contact of the fœtal head, that a moderate inhalation is quite ineffectual in subduing the vehement activity of the diastaltic function.* The diminution of the uterine contractions under chloroform shows conclusively that chloroform exercises a depressing effect, analogous to that of shock, on the spinal centre. It also proves, beyond a doubt, that chloroform exerts a poisonous action upon the spinal and ganglionic system at the same time as it does upon the brain."

2. Laceration of the Perineum. This occurred in four cases; and Dr. Barnes hence considers that chloroform does not prevent this accident. The relaxation produced by chloroform, he says, is probably simply a relaxation of the muscular fibre; whereas the natural relaxation extends to the cellular tissue, and to the skin. He further observes: "The physiologist will also observe in this stage a proof that pain—the psychical perception of pain—has its use. The abolition of pain has its danger. It has been remarked that chloroform inhalation, towards the completion of the expulsive stage, does not always arrest the action of the expiratory muscles. These cannot act efficiently, unless the chest contain a certain quantity of air, shut in by the closure of the glottis. It is by means of the powerful action of the expiratory muscles, added to the contraction of the uterus, that the head is driven through the ostium vaginæ. The danger of laceration of the perineum would, in many cases, be great, had not nature provided a safeguard against excessive and untimely expulsive energy—that safeguard lies in pain. It did not escape the acute philosophic observation of Denman that a cry, uttered at the acme of a bearing-down effect, uncontrollable by the will, by opening the glottis, and permitting the escape of the retained breath, at once broke the force of the expulsive nisus, reduced the pressure on the perineum and uterus, and saved both from rupture. Emotional influence is annulled when anæsthesia is induced; when the sensation of pain is removed, the system takes no alarm at impending danger; the glottis remains closed; the expiratory muscles continue to act with all the blind violence of the diastaltic function; the order of parturition is subverted; an essential link in the chain of the phenomena of labour is wanting; the head is driven with irresistible fury upon the perineum, before the process of dilatation is complete. It is not surprising that laceration is the result. It is fortunate that, at this stage of labour, the perineum more readily gives way than the uterus."

Dr. Barnes certainly has not proved that the chloroform is chargeable with the laceration of the perineum in the four cases in the table. The women were all primiparæ; one was 37 years of age, and another 35; patients, therefore, particularly liable to the accident.

3. Convulsions. These followed delivery, in one case, in two hours, and the patient died in nineteen hours. No doubt the patient was predisposed by her previous epileptic attacks. In another case (2), quivering of the lips and shivering occurred during the anæsthetic state, and shivering fits were renewed after delivery. In case 17, also, strong shivering followed delivery. Ether and chloroform have been found the most effectual means of exciting a fit in epileptic patients; and Dr. Barnes thus sums up his remarks on the probability of chloroform inducing puerperal convulsions in an epileptic woman—

"Labour is the exciting cause of convulsions in epileptics.

"Chloroform is a certain exciting cause of a fit in epileptics.

"Combine these two conditions; give chloroform to an epileptic patient in labour. What will be her chance of success?"

* Dr. Tyler Smith thinks it proved that, "under the influence of chloroform, stimulation of the spinal marrow is produced in the first instance. In some cases, when the anæsthetic is used in great moderation, its effects, however long continued, may, perhaps, be slightly stimulant."—*London Journal of Medicine*, December 1849, p. 1111.

These remarks of Dr. Barnes are excellent, so far as they point out the danger of administering chloroform to epileptic women; but the argument must be confirmed to this class of cases.

4. Metritis and Dysentery. Dr. Sachs refers to metritis as one of the diseases following the use of ether; and M. P. Dubois, having observed two cases of puerperal fever in which chloroform had been employed, concluded that they must stand in the relation of cause and effect. Dr. Barnes does not seem to lay much stress on this point.

5. By administering Chloroform, do we obtain for the Patient escape from pain and from the consequent shock to the system? We have here to consider the following questions:

a. Is the pain of labour physiological or pathological—that is, is it injurious or beneficial in its action?

b. Is the abolition of the sensation of pain in the parturient woman unattended by danger?

c. Is it true that the anæsthetic agents in use really annihilate pain, and save the system from the consequent shock?

(*a*) Dr. Barnes refers to a lecture published in the *Medical Gazette*, Oct. 1849, for some of the considerations which tend to prove that the pain of labour is physiological, and subservient to a useful end.

(*b*) Dr. Barnes answers this question in the affirmative. He believes that, in addition to other dangers, there is a shock, ofttimes a deadly one, from chloroform, as well as from pain. In Dr. Sachs' cases, at the commencement of inhalation, the pulse was frequently raised 20 or 30 beats in the minute, and the respirations were increased to 40, 50, or 60 in the minute; the after effect being to lower the pulse and respiration below the natural standard. This seems to Dr. Barnes still more dangerous, as it indicates a depressing action on the spinal and ganglionic systems. He thinks it moreover proved that the sudden impulse of blood, and that containing a poison, may produce a shock to the nervous centres; and he refers to the occurrence of apoplexy, puerperal convulsions, fatal syncope, and puerperal mania.

(*c*) In reply to the third query, Dr. Barnes observes, "What mean those groans, that agitation, those suppressed mutterings or open cries, which all have observed in patients undergoing surgical operations in the depth of so-called anæsthetic stupor? Are they the expression of suffering, or are they not? Can it be maintained that because patients on awaking express no recollection of that suffering, there was therefore no painful impression conveyed to the sensorium? In the case of parturition, the unconscious mother is as ignorant of her delivery as of its painful accompaniments. It might as reasonably be urged on that account that the child itself had not been born. Should we be justified in flogging a drunken man, acting on the anæsthetic principle that since he might not *feel* the infliction at the time, or *remember* it afterwards, he could not be hurt? Is there no constitutional injury in this case independent of consciousness? The law of the sequence of shock on the nervous centres upon excitation of the peripheral nerves is as inevitable as the sequence of effect upon cause. It has been erroneously concluded that chloroform simply narcotizes the brain, or rather induces a deep sleep, during which state there is complete unconsciousness of pain, and a consequent avoidance of the shock which pain produces on the system. It is further assumed that chloroformization, carried to the extent which is necessary to subdue pain, does not affect the spinal marrow or the sympathetic system. A strict analysis of the nervous system, added by experiment and observation, will show the fallacy of these conclusions. . . . . .

"In parturition as in surgery, in physiology as in pathology, the physical shock of nervous excitation of injury cannot be escaped from. In parturition as in surgery, the emotional shock of nervous excitation, or injury, may be avoided? In surgery, this may be an invaluable boon? Is it so in parturition? It is more than doubtful. The emotional influences, both those excited by the sensation of pain and those independent of pain, are of immense importance in this complicated function. The voluntary power, too, is often of the highest utility. In woman, at least, the brain should be allowed to retain its integrity,

to exert its beneficial controlling influence over her own conduct, as well as its salutary aid in attaining a safe delivery. . . . . .

"There is nothing better established in physiology than the strict dependence of all the functions of the economy on the nervous system. Further than this, the nervous system itself is dependent for its healthy powers upon the mutual action and reaction of its component parts. The experiments of Dr. Marshall Hall demonstrate the analysis of the nervous system into three elements; the brain, the spinal system, the ganglionic system: they show, indeed, that each executes distinct functions. But they execute them only long enough to prove the physiological law. No one of the nervous centres can long continue to act or to live separately from the rest. The diastaltic power of the spinal marrow is soon exhausted, if the brain be removed. The peristaltic power is soon expended, if the viscera be cut off from their connection with the spinal marrow. Inversely, the brain also soon ceases to act if severed from the spinal and ganglionic systems. Parturition is normally effected by the combined or successive agency of *all* the nervous centres. Peristaltic, diastaltic, and voluntary motion, all contribute to the expulsion of the child, and the subsequent safety of the mother. Not one of those forces can be properly manifested in due proportion as to power, time, or succession, without the integrity of the others.

"I am not aware that the most distinguished advocate for anæsthetic midwifery has modified his opinion, or his doctrine, as to the extent to which chloroformization should be carried in labour. The extent which he describes corresponds with the fourth degree of Dr. Snow: in this degree, narcotization is complete. Anæsthesia, therefore, as recommended by Dr. Simpson, is an unmistakeable reality. There can be no hesitation in concluding that, were the practice generally carried out to that extent, numerous deplorable and fatal accidents must occur. But a simple explanation lies in this fact; viz., that chloroform is very rarely given to the extent necessary to produce its characteristic effects; in other words, that *anæsthetic midwifery is no longer a reality.*"

In concluding, Dr. Barnes makes the following remarks: "In the facts this paper contains, I have offered a complete vindication of what has been called the *à priori—i. e.*, the physiological—argument against anæsthesia in parturition. *A priori* and *à posteriori* reasoning have, at length, though travelling by different roads, met at the same point. But the *à posteriori* conviction has been obtained at a fearful cost. Dr. Sachs refers to fifteen cases of natural labour, in which anæsthesia was induced by ether. Arrest of the pains was the common effect. In one case, it became necessary to use the forceps in consequence. Metritis and death followed the anæsthetic and instrumental interference. In one case, convulsions ensued. Out of the twenty-seven chloroform cases, in eighteen, more or less diminution of the uterine contraction was induced; in four, there was laceration of the perineum; in one case, metritis followed; in twelve, there were uttered groans, and other manifestations of suffering, although the patients did not remember it on recovery: in one case, puerperal convulsions occurred, and death ensued in nineteen hours; in two others, there was ominous threatening of the same appalling catastrophe." —*London Journ. Med.*, Nov. 1850.

52. *Displacement of the Ovary.* By Edward Rigby, M. D.—During the last three years, I have had occasion to notice several instances of a painful affection of the pelvic region, which I had not observed before, and which, as far as I know, has not yet been described. It is characterized by intense and peculiarly sickening pain about the sacral region, extending to one or other of the groins, and coming on in paroxysms of such agonizing severity as to render the patient perfectly frantic with the intolerable suffering. In some patients, the intermissions of ease were nearly or quite entire; in others, the pain, although divested of its characteristic intensity, never wholly abated. The source of the pain was evidently connected, directly or indirectly, with the rectum, for the passage of fæces was frequently attended with some difficulty, and always with great suffering.

According to the patient's feelings, it seemed as if a partial obstruction existed somewhere up the rectum, the smallest pressure upon which, by the pas-

sage of the fæces, was sufficient to bring on a paroxysm of this much-dreaded pain. At other times, she could scarcely tell what had been the exciting cause of the attack; for, like a fit of tic douloureux, it would frequently come on from no assignable reason, and cause her the severest sufferings for some hours. Patients describe the pain as being quite peculiar, and of a sickening and utterly intolerable character, such as they had never before experienced; indeed, from the descriptions which one or two have given of it, I should presume that it closely resembles the intense and peculiar suffering which patients describe in cases of orchitis. The pain was usually attended with great throbbing, and with a painful sense of forcing, or distension of the tender part, amounting almost to bursting, like something strangulated.

The menstrual periods have always been attended with intense pain, particularly during the early part of the discharge, though this varied a good deal in different patients, and (as far as I have seen) the discharge was invariably attended with exudations and small coagula. At these times, the whole lower part of the abdomen was frequently tender to the touch, and more or less fever was generally present, probably arising in part from the degree of suffering which had been induced. The tongue always showed the dry short-napped fur which is so constantly seen in cases of disease, or displacement of the pelvic viscera; the digestive organs were much deranged, and not unusually the stomach was extremely irritable.

On making a vaginal examination, she would frequently wince, and complain as soon as the finger touched the os and cervix uteri; but a little care quickly sufficed to show that these parts were not morbidly tender, but that pain was produced by pressing them against the tender spot which was behind and to one side, in the direction of one or other of the sacro-iliac synchondroses, or sacro-ischiatic notches. On passing the finger, therefore, behind and to one side of the cervix, and pressing against the wall of the vagina in the above-mentioned direction, the painful spot is at once reached, and sometimes a slight degree of hardness is perceived.

On examining per rectum, the finger soon reaches the same acutely painful spot which had been felt per vaginam. The patient dreads the slightest touch of it, however carefully applied. It is evidently a convex body, like an enlarged gland, though usually softer, situated in the recto-vaginal pouch: it is movable, if the patient can bear a sufficient amount of pressure for that purpose, and usually one or more vessels are felt throbbing when the finger presses upon it. The ovary is generally larger than natural, being more or less swollen from the strangulation produced by its displacement; and when the swelling is considerable, not only will pain be produced by pressing in the groin of the same side, but the ovary will be distinctly moved upon the finger per rectum. From the fact of its mobility can be explained the circumstance of our being able to feel it sometimes lower in the pelvis than at others, and why the patient is in greater suffering when it is so than when felt higher up. Hence the passage of a solid mass of feculent matter is attended with fearful sufferings; the ovary is pushed down by the fæcal mass as it descends through the rectum, until its attachments are put considerably on the stretch; a further amount of swelling is produced by this state of strangulation, and, in this condition, the fæcal mass is at length forced past, to the indescribable agony of the patient, frequently leaving her in severe pain for many hours afterwards.

In other cases, the ovary is nearly or quite fixed, having apparently contracted adhesions to the neighbouring parts.

It is not easy to speak decidedly as to the causes of this displacement, but I have chiefly, or almost solely, observed it among women of a lax, flabby habit, prone to passive menorrhagia, leucorrhœa, and abortion, but most particularly where the uterus has been retroverted. I have long since pointed out that ovarian irritation or inflammation is a frequent result of retroversion in the unimpregnated state, arising probably from the tension to which the broad ligaments are exposed, and consequent engorgement of the ovary.

The diagnosis is not difficult, for the pain is quite peculiar. It is of a forcing, throbbing character, so sickening and utterly intolerable as to be entirely different to any other pelvic pain with which I am acquainted. Its seat is referred

to the upper and posterior part of the vagina, usually somewhat to the left side where the ovary can be felt, especially upon examination per rectum.

The direction in which we can best reach the painful spot will guide us as to applying leeches per rectum or vaginam; they pretty certainly produce much relief, although, so long as the displacement continues, it cannot be more than temporary. The grand object necessarily must be to restore the ovary to its natural position, and this, whether connected or not with retroversion, will be best obtained by the prone position. The patient soon learns by experience what amount of lying forwards will be required, but, as in cases of retroversion, it is generally found necessary to assume an extra degree of prone position for a few minutes (knees and elbows) previous to lying down upon the prone couch. —*Medical Times*, July 6.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

53. *Child born in the beginning of the sixth month, and reared.*—Dr. W. T. T. Barker, of Dumfries, relates (*Medical Times*, Sept. 7th, 1850) the following remarkable case:—

"Mrs. A., aged thirty, weaned her first child on the 17th of November, 1846, a fortnight after which (1st December) she menstruated naturally. Two days after the catamenia disappeared (7th December), she conceived, having the same sensations *post coitu* which she felt at her previous conception. At four months she quickened. She was delivered (by a midwife) of her second child, a female, on the 14th of May, 1847—on the hundred and fifty-eighth day of gestation. The child had only rudimentary nails, and almost no hair, except a little, of a slightly reddish colour, at the lower part of the back of the head. It weighed one pound, and measured eleven inches. It was merely wrapped up at first, laid in a box about a foot long, used by the father (who is a slater) for carrying nails, and set on the kitchen fender, before the fire, to keep it warm. It came on very well, and was subsequently treated very much the same as other children, except, perhaps, that it was a little more looked after than usual, being considered a curiosity. She is still of small make, but is quite healthy, and takes her food well.

"I have now attended the family for four years and a half, and have watched her since her birth, but my professional services have never been called for on her account."

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54. *Death from Chloroform.*—Dr. Aschendorf states that a child, one year old, had been operated upon for a nævus under the influence of chloroform, with apparent success, when, on the child being removed from the table, its head fell back, and it instantly died in a state of convulsion. The quantity used had been six drops in the first instance, and a second application of three drops in some tow placed in a cup.—*Lond. Med. Gaz.*, Nov. 1850, from *Casper's Wochenschrift*, Sept. 6th, 1850.

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55. *Poisoning with Dulcamara.* By Dr. Plaetschke.—A man forty years of age, who was using decoction of dulcamara-stalks for a cough, took, one forenoon, from three to four quarts prepared from a peck of the stalks. In the evening he was suddenly seized with numbness in his limbs, and pains in the knees and elbows, dryness of the throat, and paralysis of the tongue. These symptoms increased so much in the course of three or four hours that he could scarcely move either his limbs or tongue. The head remained unaffected, consciousness unimpaired, the pulse quiet, but small and rather hard, breathing regular, the skin cool; there was neither nausea nor vomiting. From the time which had elapsed since taking the decoction, the administration of emetics was contra-indicated; recourse was, therefore, had to stimulants. Camphor was given freely, and the symptoms gradually disappeared.—*London Med. Gaz.*, 27th Sept. 1850, from *Casper's Wochenschrift.*

MISCELLANEOUS.

56. *On the Use of Lead in the Manufacture of Sugar.*—Dr. Redwood communicated to the Pharmaceutical Society (Oct. 9th, 1850), the result of some experiments he had made with the view of ascertaining the action of certain chemical agents upon sulphate of lead. In the discussion which has recently taken place with reference to the proposed process for purifying sugar by the use of subacetate of lead and the subsequent separation of any excess of lead by sulphurous acid, the advocates for the adoption of this process have contended that, should any portion of lead remain in the sugar—which the chemists appointed by the government to investigate the subject have proved to be the case—yet this, being in the state of sulphite, will be perfectly harmless. This opinion, which is principally founded upon the fact of sulphite of lead being a very insoluble salt, is opposed to that expressed by the medical men, Drs. Pereira, Taylor, and Carpenter, who were consulted by the Government. The object of Mr. Redwood's experiments was, to determine how far sulphite of lead was entitled to the appellation of a stable and insoluble compound when exposed to the action of chemical agents which it would be likely to encounter in the stomach. Sulphite of lead was found to be insoluble in water and in acetic acid. On digesting it in water containing free hydrochloric acid, however, a considerable quantity of the lead was taken into solution, so that the liquid gave a copious precipitate on the addition of hydrosulphuret of ammonia or carbonate of soda. A similar effect was also produced on digesting the sulphite in solution of sal ammoniac, and, to a slight extent, on digesting it in water acidulated with lactic acid, and in solution of common salt. It was also found that, on digesting sulphate of lead in solution of carbonate of soda, a mutual decomposition was effected, and carbonate of lead formed, so that, on treating the insoluble residue with acetic acid, abundance of lead was obtained in solution.

Dr. Ure stated that he had had much experience in the manufacture of sugar, and he felt satisfied that the proposed process for purifying sugar with lead could not be practically applied without endangering the public health, especially since it had been shown that sulphite of lead is not the stable and insoluble compound that it had been represented to be.

Dr. Golding Bird thought it was a great error to assume that insoluble substances were necessarily inert. Even admitting the insolubility of sulphite of lead, therefore, he should have required strong evidence to prove that it could safely be administered, even in minute doses, in an article of food of daily consumption. He thought too much caution could not be adopted in guarding against the ill effects which might ensue from the adoption of the process alluded to.—*Med. Times*, Oct. 12th, 1850.

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57. *Statistics of Poisoning.*—A return has been printed by order of the House of Commons, of the number of persons, male and female, tried in the United Kingdom for murder, and attempts to murder, by the administration of poison, from the year 1839 to the year 1849, both inclusive. The number of persons so tried in England and Wales, during the ten years, was 154—namely, 69 males and 85 females; the number of convictions on either charge was 66. In Scotland the trials for murder by poison, since 1839, have been only 9—2 males and 7 females; the convictions were 3. The trials for attempts to murder were 6—3 males and 3 females. Total trials in Scotland, 15; total convictions 7. In Ireland the trials amounted to 56—25 males and 31 females; and the convictions were 13. In 1839 there occurred only one conviction in Ireland for murder by poisoning: in 1841 there were 5 convictions found against 10 persons accused. In 1849 the number of indictments was 13—7 males and 6 females; and the convictions 3.—*Monthly Journ. Med. Sci.*, Dec., 1850.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Relation of the Dumb-Bell Crystals to Uric Acid and Oxalate of Lime.—By Charles Frick, M. D., of Baltimore. (In a letter to the Editor.)

My attention has been lately drawn to an article by Dr. Golding Bird entitled "Observations on the Nature and Chemical characters of the Dumb-Bell Crystals described as Oxalate of Lime," in the *London Medical Gazette* for October, 1850. In this article, Dr. Bird proves that a deposit of these crystals underwent the same changes by the action of chemical agents as the octohedral crystals of oxalate of lime, and at the end of his article he refers to a paper of mine, published in a former number of your Journal, and wonders that "so careful an observer as Dr. Frick could have committed such an error" as to suppose these dumb-bell crystals to be uric acid.

Dr. Bird has misunderstood my meaning if he thinks I meant to assert that all dumb-bell crystals are composed of uric acid. My opportunities for observing these crystalline bodies have been too infrequent for me to make so sweeping an assertion; and had I thought so, I should rather have supposed that my limited observations had allowed me to come to an erroneous conclusion, than that so able and accurate a microscopist as Dr. Bird had been mistaken in his views of the nature of these crystals. I do not at all deny that oxalate of lime may occasionally present itself in this form, but I am very sure that all the dumb-bells found in urinary deposits are not oxalate of lime.

I had supposed that the changes I detailed in a paper published in your Journal some months since would have proved this conclusively, but as Dr. Bird denies the fact so strenuously, I deem it due to myself to add one or two other facts that have fallen under my notice, and must ask the favour of their insertion in your Journal.

I have in my possession about two drachms of pure colourless uric acid, upon which I have been in the habit of experimenting. This, moistened with a few drops of distilled water, and examined under the microscope, always presents one or more distinct dumb-bells, mixed with lozenge-shaped and amorphous crystals of uric acid. If another portion is dissolved in liquor potassæ, and different quantities of muriatic acid added to separate parts of the solution, almost all the different shapes of uric acid may be recognized, and among them, always a few perfectly-formed dumb-bells, surrounded by others whose shape is amorphous. These facts would be sufficiently conclusive, provided the substance acted upon was uric acid, and contained no lime. This is proved as follows:—

1st. On subjecting a small portion to the blowpipe or a piece of platinum foil, it blackens and then entirely disappears.

2dly. On adding a small quantity of liquor potassæ it is dissolved, making a clear solution.

3dly. On dissolving it in nitric acid, and then heating it over the fumes of ammonia, the purple colour indicative of murexid is produced.

These tests prove undoubtedly that the specimen acted upon contained uric acid, and that no lime was present, so that these dumb-bells at least are neither oxalate nor oxalurate of lime.

Dr. Bird, in the article just mentioned, also states that Dr. Hassall has informed him that he has met the dumb-bell crystals in the residue left by the spontaneous evaporation of a drop of urine on a plate of glass, but they were perfectly soluble in water. These of course were not oxalate of lime, but neither were they uric acid.

Dr. Carson, of Philadelphia, an exceedingly accurate and careful observer, tells me that during the last summer he observed a dumb-bell deposit, which was removed by acetic acid, and which he considered was composed of the triple phosphate. This again could scarcely have been oxalate of lime.

As a negative argument, I might advance that I have on several occasions, after adding together oxalic acid and lime in solution, produced the deposition of the crystals of oxalate of lime by the gradual addition of the vapour of ammonia, and although I have constantly found octohedra and all the different varieties of ovals which I have figured in my little work on "Renal Affections," under the head of oxalate of lime, I have never been able to observe any dumb-bells.

Without at all denying Dr. Bird's view, that these crystals are occasionally oxaluret of lime (although I have never been able to produce them by adding lime to a solution of oxalurate of ammonia), I yet think they are more frequently composed of oxalmic acid alone, and it is very probable that this acid is not formed by the union of oxalic acid and urea, as Dr. Bird supposes, but is produced by the action of ammonia liberated during decomposition upon uric acid. If uric acid is dissolved in nitric acid, alloxan is first formed, then parabanic acid, and if this latter is saturated with ammonia, oxalmic acid is produced. To these changes, the following facts bear a very decided relation.

We occasionally detect these dumb-bells in urine that is left standing for some weeks, which has undergone decomposition, and which did not at first contain either oxalic acid or oxalate of lime. And they are much more readily produced when the uric acid is deposited by a drop of nitric acid, and then suffered to remain long enough to liberate ammonia by the decomposition of urea.

I am aware that this latter speculation is not supported by a sufficient number of carefully observed facts, and regret that the time for the publication of your Journal is so near at hand, as to prevent me from going more into detail, but I hope at some future time to be able to state some facts which will bear more directly upon the subject under consideration.

Baltimore, *December* 23, 1850.

Iritis complicated with Amaurosis. By George W. Patterson, M. D., Resident Physician of the Northern Dispensary of Philadelphia.

Mrs. W. called at the dispensary in reference to an affection of her eye; she was about 40 years of age, of a cachectic habit, and a seamstress by occupation. Upon examining her eye, I found a diffused redness of the sclerotica; the cornea was surrounded with a vascular zone; the pupil was much contracted and scarcely dilatable; the iris had lost its usual fibrous appearance, was irregular at its inner margin, and its colour was of a reddish hue; she was unable to distinguish objects, and what was somewhat remarkable, there was no photophobia; light that could not well be borne by the sound eye could be readily endured by the affected one. She attributed the inflammation to ex-

posure to cold and to sewing until late at night. Such was her condition, and to the affection of this organ alone did she direct my attention.

Her pusle being feeble, considering the amount of inflammation that existed, I did not resort to venesection, but had leeches freely applied to the vicinity of the eye; gave calomel, grs. iv, and followed it with a saline cathartic, and also ordered mucilage of pith of sassafras as a local application. At the next visit, I found the inflammation somewhat subdued, the pulse being small, though not frequent and having but little force; noticed several fan-like projections of lymph from the free margin of the iris—and she also complained of some circumorbital pain—prescribed R. Mass. pil. hydrarg. gr. xviii; pulv. ipecac. grs. vi; m. and ft. pil. vi; and directed one to be taken three times daily.

Ordered a blister to be applied to the nucha, and the blistered surface to be dressed with mercurial ointment, and also ext. belladonna made thin by water to be applied around the eye.

The belladonna acted, although the pupil was not dilated by it as much as was desirable—continued the application. Discovering slight fetor of the breath, I determined to discontinue the use of mercury and substitute the iodide of potassium; I did so because of her peculiar diathesis, wishing to avoid salivation, and also from a belief that the inflammation was of a rheumatic character, and it was while under this agent, the iodide of potassium in five-grain doses three times daily, that the effusion disappeared; the pupil resumed its even margin and the redness passed away, yet notwithstanding this improvement, the patient could not see, although prior to the commencement of the iritis her vision was unaffected. Being quite anemic and debilitated, I now prescribed Vallet's ferruginous mass thirty grs. daily in divided doses, with the view to correct the general adynamic condition of her system, and thus induce the optic nerve to resume its function. After she had taken the preparation of iron for a week, I had the satisfaction to find that sight was returning, which was completely restored after she had taken about ℥i of the medicine.

The patient at this period informed me that she had been and was still suffering much from leucorrhœa, and that the discharge was not only profuse and watery but of an acrid and offensive character. Believing this drain to have been the secret cause of much of the difficulty with which I had had to contend, I at once resorted to the following formula, to be used as an injection. R. Arg. nitrat. ℈i; creosot. gtt. xx; aqua, f℥vi.—M. The discharge from the vagina soon became albuminoid in its character, and gradually disappeared. Having thus corrected these complications, she was discharged.

Abnormal Relation with Inversion of the Clitoris and Urethra. By WILLIAM D. KELLEY, M. D., Gallatin, Tenn.

Mrs. — having been guilty of illicit intercourse, was soon after attacked with gonorrhœa, in the treatment of which the following anatomical relation was discovered: on separating the labia majora, the nymphæ were seen to be but slightly developed, a ruga or fold of mucous membrane affording the only evidence of their existence. Immediately *beneath* the commissure of the vulva was the smooth triangular space of the VESTIBULUM, with the meatus urinarius situated two lines above its inferior margin, and three-eighths of an inch *above* the projecting glans clitoridis; which dipped into the superior angle of the vagina. The patient being placed upon her back and a catheter introduced, instead of pursuing an upward and backward direction, it passed vertically for an inch, when a slight incurvation led directly into the bladder,

a jet of urine following. It is thus shown that the urethra penetrated the space between the corpora of the clitoris and the arch of the pubis, and made its exit above the clitoris; both the vestibulum and meatus urinarius appearing in front and above the latter organ. The clitoris was reverted so as to completely conceal the anterior edge of the upper wall of the vagina, and its glans was grooved antero-posteriorly by a deep sulcus. Mrs. — is a woman 45 years of age, is the mother of several children now grown to man and womanhood, and of virtuous habits previous to her recent guilty commerce.

DOMESTIC SUMMARY.

Case of Poisoning by Bromine.—Dr. Sayre has made to the New York Pathological Society the following report on a specimen of poisoning by bromine recently presented to the society.

"A. H., aged twenty-four, of good health and temperate habits, a daguerreotypist by profession, residing in Williamsburgh, near the city of New York, at half-past 6 A. M., on the 29th of May, 1850, swallowed one ounce, by weight, of bromine, for purpose of self-destruction. The immediate symptoms, as reported by his medical attendants, were, of spasmodic action of the muscles of the pharynx and larynx, and great difficulty of respiration. This was soon followed by intense burning heat in the stomach, with great anxiety, restlessness, and trembling of the hands. The pulse was rapid, tense, and corded, and the respiration greatly hurried. The stomach was entirely empty at the time of taking the bromine. Previous to the arrival of medical assistance, a quantity of carb. ammonia was exhibited. An unsuccessful effort was made to use the stomach pump; an emetic of sulp. zinc, and afterwards carb. magnesia, in solution, with albumen, was given, which produced vomiting only when the stomach was distended. At other times there was no nausea or vomiting. The symptoms above described increased in intensity: the hands and feet became cold, with failure of the pulse, &c., until 2 P. M., when he died, seven and a half hours after having taken the poison.

"*Post-mortem, seventeen hours after death.*—On opening the abdomen, the external and anterior surface of the stomach was vividly injected; the lesser curvature to a great degree. Near its middle was a softened ecchymosed spot, an inch and a half in diameter; posteriorly were several smaller and similar spots, surrounded by red borders. The external surface of the duodenum was also vividly injected; the mesentery minutely injected, and a portion of it nearest the stomach was stained of a deep yellow colour, as were also other parts lying immediately beneath the stomach. The spleen and liver were of normal appearance. The pancreas much injected and deeply stained. The stomach contained about four ounces of thick fluid, resembling port wine dregs, and exhaling faintly the odour of bromine. Its whole internal surface was covered with a thick layer of black deposit, resembling coarse tanned leather, with intense submucous injection. There were about four ounces of fluid in the pericardium. The lungs were gorged with blood.

"*Remarks.*—On examination before the society, the internal surface of the stomach was of a nearly uniformly dark colour, and presented an appearance as if a mixture of charcoal and gum-Arabic had been spread over its mucous surface, and then allowed to dry and crack open in very numerous places. On gently rubbing or scraping off this black substance, the epithelial lining was found to be completely destroyed, leaving only a very thin portion of the mucous membrane. The colour gradually diminished towards the duodenum, and in this intestine was ash-coloured, or light gray. There was very considerable submucous injection of the stomach, and in some spots extravasation. The same appearance, though of less extent, was observed under the peritoneal coat.

"When we consider the physical and chemical properties of bromine, its nau-

seous and suffocating odour, its irritating effect upon the nostrils and organs of respiration and deglutition, and its corrosive quality, it is surprising that such a substance should ever have been selected for the purpose of suicide; but still more so that the patient should ever have succeeded in swallowing it. It is probably the only case on record of fatal poisoning by bromine, occurring in the human subject."—*New York Journ. Med.*, Nov. 1850.

History of the Epidemic Dengue, as it prevailed in Charleston in the summer of 1850. *The Charleston Medical Journal* for Nov. last contains a history of the Epidemic Dengue as it prevailed in Charleston in the summer of 1850, by S. H. Dickson, M. D., which, like everything from the pen of its distinguished author, is highly interesting and drawn up with ability.

The summer, he states, had been unprecedentedly hot and dry; the thermometer ranging between 80° and 90° for forty days successively; with no rain since the middle of May. Hooping-cough and scarlatina had spread extensively, the latter assuming considerable severity, occasioning in the months of May, June and July, 1 in 14 of the whole number of deaths during that period. Yet on the whole the city was healthy.

In the last week of July, cases occurred which looked like scarlatina, yet presented obvious differences, and these differences became more and more distinctly marked, until the resemblance was lost. Fever, assailing with great violence, ran a brief course, inflicting intense suffering, and disappeared, in many instances, without any cutaneous eruption, leaving the patient feeble and prostrate.

He gives the following description of the disease:—

"The access of the disease might be slow or sudden. If the former, there was a stage of lassitude, sensitiveness to a current of air, with dryness of skin. A formed chill rarely preceded. Most persons had a dull headache, with some intolerance of light. In general, anorexia was present, though some retained more or less appetite throughout. The tongue was clean and red. Pain gradually diffused itself over the limbs and back: many became drowsy, with red eyes; the pulse usually a little increased in frequency, in some, remained unaltered; and thus two, three, four, or five days would pass off, with great complaint of languor, debility and discomfort. On the fifth, sixth, or seventh day, the tongue would become furred, with slight nausea, and an eruption show itself on the surface, with more or less itching. This would vary in distinctness many times in the twenty-four hours, and gradually disappear, leaving the patient to convalesce slowly.

"Such was the history of a large number of cases, but, in a majority, the attack was sudden and violent. The patient was seized with severe headache, intolerance of light, and universal distress and oppressive debility. The skin was hot and dry; the face flushed, the eyes red and watery; the pulse tense, quick and frequent. The patient was exceedingly restless, and soon complained of intense pains in back and limbs and large joints. In some, the stomach and bowels were the seat of violent pain. The febrile paroxysm was of very various duration; and the local determinations might also vary, except as to the head, which, as far as I have seen or heard, was universally affected. In some, there was delirium throughout the febrile part of the attack. I noted carefully, in several, the length of the first or febrile stage. In one, it was only six hours before the skin became moist and the pulse abated in frequency. In nine hours, the remission was well established: but a degree of circulatory excitement prevailed for nearly twenty-four hours, when it left the patient and did not return. The pains in the head, back and limbs continued, with little abatement, however, for about forty-eight hours, when they gradually subsided. The patient was up on the sixth day; but, in this case, there was no eruption. In no other case did I see a paroxysm of less than twelve hours. The average, I think, was about thirty-six. In a few instances, it lasted for two and three, and seldom for four days. I saw no remission nor intermissions, but heard of many cases, both remittent and intermittent. There was, in the fully-formed attack, two very definite stages, with an interval clear of fever. This interval, of two to four days, was sometimes so free from suffering that patients would

rise from bed and lounge about the house, complaining only of debility, or even, if resolute, resume their ordinary habits and occupations. But on the fourth or fifth they would again yield to oppressive malaise and weakness, and seek the recumbent posture. A return of pain in the head and limbs, if it had disappeared; often a recurrence of febrile excitement would mark the access of this second stage. The tongue, which, until now had been clean and red, would put on a thick yellowish fur; the stomach would be more or less nauseated—very seldom to the extent of retching or vomiting; and this state of things would remain until, on the fifth, sixth, or seventh, some cutaneous eruption would exhibit itself, usually with a sense of heat and itching.

"The course of this disease occupied about eight days—not varying greatly from this standard. The differences seemed to be most marked in the extension or contraction of the interval between the two stadia.

"With the subsidence of the eruption, all ailment usually disappeared, but slowly and gradually. Almost all complained of a most annoying degree of muscular weakness. A very large proportion were alarmed by the occurrence of syncope on their first attempting to resume the upright attitude and exert the muscles of locomotion; and some few were troubled with stiffness of the back and extremities.

"The time of access of the febrile paroxysm, in a majority of those whom I could observe closely, was about ten in the morning—the hour of access of tertian. The subsidence was marked by profuse sweating, in most.

"In many, the second stage was attended with great pain, especially in the head, but without fever.

"There was a marked difference in the proportion of cases attended with eruption, in the first and latter portion of the epidemic. It became universal, or nearly so, in those who were attacked in the last week of August and in September.

"There was a marked difference, too, in the proportion of blacks presenting the eruption. I bent an especial attention to this point, knowing how easy it is to overlook that symptom in the coloured patient. I directed them to observe for themselves; to report any roughness, heat, or elevation, or itching. Three out of five escaped. It was also more common for them to recover without the supervention of a second stage. This, when it did happen, was denoted, in several, by disorder of the stomach and bowels, cholic, diarrhœa.

"In children, convulsions occasionally ushered in the attack. I saw one affected, through the three days of the first stage, with vacillating delirium, resembling closely the condition of delirium tremens—fearful and anxious to avoid some evil. In these subjects, also, the stomach was apt to be disturbed, with vomiting, sometimes, of viscid bile. In some, there was painful diarrhœa, from the first.

"No epidemic of which I have ever read was so universal in its prevalence as this. Numerous large households were attacked, without a single exception. Of my family, eleven in number, I alone escaped. In my kitchen, fourteen out of seventeen were assailed. All but two of the ten whites had an eruption. In five of the blacks, I am sure there was not the least appearance of this kind; in but two was it marked enough to make one certain of its presence.

"In any given domicile, the attacks were apt to be simultaneous, or in rapid succession; so that it often happened that there was in a family no one well to attend the sick.

"The latent period was various, but, in certain instances, prodigiously brief. Dr. Bellinger was satisfied with the proof that two persons, from healthy localities, were attacked within twenty-four hours, on visiting the city. Dr. Cain, whose opportunities at the Marine Hospital were specially definite, saw some cases in which the attack occurred on the day after arrival here. This reminds us of the instances in which typhus infection was immediately efficient, as related by some of our best authorities, Marsh, Thompson, &c. Several examples occurred of attacks within three days; it seldom gave a longer respite than five. When it had much declined in extent and violence, I saw two cases occur on the eighth and tenth days, as late as the middle of September.

"Exposure to the cause of the disease was also effective in a very short time—visitors to the city on business which detained them but a few hours being often assailed soon after their return home.

"The prognosis was altogether favourable. It was, indeed, curious, and highly gratifying to know—as a brief acquaintance with this strange disease taught us—that, furious as was its onset, vehement as the complaints of the patient might be, and his condition however full of menace, these fearful symptoms would subside after a time, and certain restoration to health ensue.

"The most alarming phenomena were convulsions—not exclusively confined to children, they occurred in one adult male—delirium—great gastric and intestinal disorder—great failure of pulse on the subsidence of the early febrile paroxysm. I saw, in some, the heart labouring slowly and heavily, as in bad cases of typhus. Some convalesced with marked slowness of pulse—as low as 40—the cutaneous affection assuming the erysipelatous character, or becoming carbuncular. I saw no death; indeed, fatal terminations were very rare. I heard of one, from mere prostration; two from erysipelas; and two from tetanus, spontaneously supervening. These latter seemed inexplicable and accidental.

"The diagnosis of our epidemic presents some difficulty. If we consider the eruption an essential character, we must acknowledge the presence of two forms of fever, coincident and concurrent, deserving, from their frequency, each the title of epidemic; or we shall be driven to regard a large number of the attacks as abortive and incomplete. In the first onset, the two sets of cases presented no appreciable difference; nor was there a single circumstance in their history which could lead to the prediction that eruption would or would not ensue. Nay, as in a large majority, eruption was the last in the train of symptoms, so, in some, it was the very first, and, in others, presented itself within a few hours after the invasion of fever. Some were not thus saved from a second stage, with a second eruption. This I saw, most distinctly, in a case in my own house.

"As to the eruption itself, it deserves a still more special notice. If the question were to be asked of the whole body of the physicians of our city, I doubt whether any two of them would offer the same definition or description of the cutaneous efflorescence, as characteristic or peculiar, while each of them would describe many varieties as occurring under his notice. I will endeavour to pourtray and class them:

"1st. *The Scarlatinous.*—This aspect of the surface was most common in the earlier existence of the disease; and many suppose, very reasonably, that the first cases were regarded and spoken of as scarlatina, which had been very prevalent through the winter and spring. This smooth, diffused redness of the skin was usually attended, too, with similar redness of the tongue, lips and gums. It was the character apt to be assumed by the premature efflorescence which sometimes intruded itself on the first stage during the three first days.

"2d. *The Rubeolous.*—I denote, by this term, a brownish, circular eruption, little elevated, rough and furfuraceous. This was not met with except in the maturity of the cases, coming out on the sixth, seventh, and even as late as the eighth and ninth days—always attended with fever and gastric disorder.

"3d. *The Erysipelatous.*—Cases of this sort were among the worst and most serious. In an interesting boy of seven years, the son of a medical friend, the skin of the cheek and temple will be permanently scarred from the sloughing of the cellular membrane beneath.

"4th. *The Variolous* or *Varicellous.*—This was not frequent; but I saw two instances in which a pustular eruption appeared. I am disposed to class, here, a very extraordinary case of fever, which I saw in July, with Drs. Porcher, Bellinger and Moultrie, in which the whole back was covered with pustules, like those of confluent small-pox, a few occurring on the forehead and limbs.

"5th. *The Lichenoid.*—The resemblance to prickly heat was here very obvious, but the little papulæ were fugacious, and would subside and become prominent many times during the period of their stay, which was not prolonged usually beyond twenty-four to thirty-six hours. These attended the milder class of attacks, and showed themselves often while the patient was beginning

to go about. There was no soreness with them, and but little itching or other inconvenience. It was in these and the second form, the Rubeolous, that we met with the desquamation of the cuticle—so frequent an event.

"6th. *The Papulous.*—I saw several of this sort. There was roughness of skin, with hard points, little elevated, seemingly within the skin. These points were discoloured, sometimes brownish, often of a leaden hue. They were coincident with feeble circulation, slight nausea, vertigo.

"7th. *The Phlegmonoid.*—It was ascribed to the heat of the season that boils were so common and troublesome, not only to children, but among adults. Great numbers suffered from these annoying tumours, and carbuncle also was of frequent occurrence. But it was among the patients recovering from fever, or in its second stage, that these affections were most complained of, seeming, in many, to take the place of the more ordinary eruptions.

"8th. *The Miliary.--Urticarious.*—Punctuate, resembling nettle-rash very closely. This was frequently seen, perhaps not so often alone as intermingled with some of the others.

"9th. *The Purpurous.*—Purpura was met with several times among this confused variety of eruptive disorders. It was usually of the simple form, but occasionally diffused ecchymosed spots were seen, and sometimes sponginess and bleeding of the gums.

"I saw with Dr. Jervey a case in a negro infant, presenting the exact appearance of lepra vulgaris. It came on and subsided at the same periods of the disease with the other eruptions.

"The child of the last-named gentleman was the youngest subject that I have known attacked. It was less than a week old, when the disease appeared with great redness and heat of skin, fever, etc. Its forehead was covered on the sixth day with circular elevations, firm and transparent, very like sudamina."

Dr. D. considers this as the same disease as the dengue of 1828, which prevailed at the South, and the break-bone fever which prevailed in Philadelphia in 1788, described by Rush.

As regards the treatment, Dr. D. says he has little to record. "All my medical associates came to look upon this strange disease as one so certain to terminate favourably that they were not called upon to interpose any active remedies for suffering so transitory. Some followed the medicine expectante almost absolutely—advising only rest in a recumbent posture, with cold applications to the head and warm pediluvia. Others added sub-acid drinks, I mean enjoined them as somewhat remedial. The patient took them readily, though there was little thirst. Prof. Frost used the lancet, though rarely, as a palliative in the violent headache of the first stage, and, as he tells me, with pleasant effect. Many prescribed, at the onset, a mild cathartic, Epsom salts or a Seidlitz powder, abstaining from farther prescription. Some maintain that a full dose of a mercurial was useful. Leeches, vesicatories, and a great variety of counter-irritant and soothing applications, were made to the seats of pain, with reported benefit. Leaving this matter to the patient, I saw no marked advantage from numerous experiments made with care. The subsidence of the first stage of febrile excitement afforded a good opportunity for the exhibition of quinine to those who believed the disease remittent or intermittent. I advised it to a few—and saw it taken by others—uniformly, as I thought, with annoyance and injury—never with any good result. Opium was employed almost universally—by some exclusively. It did not seem to me indicated so forcibly, as in the arthritic affection of 1828, yet it was often highly serviceable. It was certainly our best palliative. Even in the first stage, when it seemed of equivocal applicability, it gave a quiet sleep followed by a copious diaphoresis. A considerable portion of my patients, however, were drowsy from the commencement, and several spent nearly the whole of the first stadium in spontaneous sleep. All seemed to derive some solace from moderate doses of tinct. opii camph., in the interval and during the second stadium.

"As in typhoid affections, stimulants were often found eminently useful, and great numbers are ready to affirm that they can ascribe the first sensations of returning comfort to an indulgence of this sort on the part of their physician. One would take wine, another malt liquors, and a third brandy in preference.

Whenever the pulse was inordinately slow, and the heart's action laboured and dull, I administered stimulants freely. So also when the skin was cold, or covered with profuse sweat, or the eruption became purple or livid. The apparent atrophy or remarkable emaciation of many convalescents continued, until they were advised to resort to some stimulant; under the effect of which alimentation would seem to have been promptly resumed, and the food taken become at once more nutritious."

—

Gangrenopsis.—The following suggestion by Professor Dugas, of Augusta, Georgia, contained in a letter to the Editor of the *Southern Med. and Surg. Journ.* (Oct. 1850), as to the influence of mercury in favouring the occurrence of gangrenopsis, where a tendency to it exists in the system, is well worthy of consideration.

"In this section of the country," remarks the professor, "the occurrence of gangrenous affections of the cheeks, lips and gums, in children, is by no means uncommon, and there are few communities in which there may not be found some living evidences of its havocs upon the face, as well as of the possibility of occasionally preventing a fatal result. I do not know of any satisfactory explanation of the fact that it affects exclusively those of tender years, and most frequently those between five and eight years of age. The object of this communication is to direct attention to a corresponding susceptibility of children of this age to mercurial salivation and sloughing, and to elicit the inquiry into the probable influence of mercurials in the occasional causation or excitation of such a state of things. Without denying, for a moment, that sloughing phagedena, cancrum oris or gangrenopsis (as the affection is variously denominated) may and does occur in individuals who have never taken mercurials, is it not possible, nay, is it not probable, that the use of an agent which does of itself sometimes induce a very similar destruction of tissues, and which is especially prone to do so at the very period of life most subject to gangrenopsis, may increase the tendency to this disease, if any exist in the system? The affirmative would seem a necessary or at least a rational corollary. Having had my attention very early drawn by a practitioner of genius and fine judgment (my preceptor), and one who was never accused of being afraid of mercurials, to the danger of giving calomel to children during the period of second dentition, I have never forgotten the lesson, and feel strongly disposed to attribute to it the fact, the remarkable fact, that during a practice of twenty years, I have never had a case of gangrenopsis to originate under my treatment! I have, of course, seen cases of it, but they had always originated in the hands of others. I have now vividly in my recollection a family of five children, three of whom had during the same autumn been successively taken with remittent fever and died with most awful sloughing of the cheeks and lips. They were all treated with calomel. Discouraged at the result, the parents determined to change their medical adviser, and I was requested to see the other two children when similarly affected with fever. These were treated without mercurials and recovered, without gangrenopsis. Far be it from me to wish to generalize from isolated cases, or even from the mere results of my own experience. Yet I have deemed it a duty, in a matter of such vital importance, to make the above remarks, with the hope that they may incite others to endeavour to determine how much should be legitimately attributed to an original defect of constitution, and how much to the treatment instituted. It will be observed that in the cases published in your last number, nothing is said of the treatment to which the patients had been subjected prior to their admission into the hospital."

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Treatment of Rubeola by Inunction.—Dr. John Evans, of Chicago, has treated measles successfully by inunction as recommended by Dr. Schneeman in scarlatina, and relates (*North-Western Med. and Surg. Journ.*, Nov. 1850), the following case. June 1, 1850, he was called to a girl fifteen years of age, labouring under the characteristic symptoms of a violent attack of measles—strong febrile action; severe pain in extremities, loins and head; injected and suffused eyes, with intolerance of light; constant distressing nausea, and the eruption well marked upon the face, neck and breast. Eight grains of Dover's powder was

given every six hours, and there being no abatement of the symptoms the next morning, Dr. Evans directed the patient to be rubbed with a piece of fat bacon over the entire surface.

The relief was marked by the subsidence of all the distressing symptoms in a few hours, and the application was repeated twice the next day. No other treatment was applied except the free use of warm teas. The recovery was more rapid than Dr. E. had before seen in such cases and without any disagreeable sequel.

Two other members of the same family were treated by the inunction with the same favourable results.

Dr. E. has since used the plan of treatment in a number of cases, and with uniform and prompt relief.

—

Hydrangea Arborescens in Lithiasis.—Dr. E. W. Butler recommends a decoction or syrup of the root of the *hydrangea arborescens*, in the dose of a teaspoonful three times a-day, to facilitate the discharge of gravel, and to relieve the pain attendant on the passage of a calculus through the ureter.—*New Jersey Medical Reporter*, Oct. 1850.

—

Absence of Uterus.—Dr. G. S. Crawford, of Chicago, relates (*North-Western Med. and Surg. Journ.*, Nov. 1850) a case of absence of the uterus. The patient was thirty years of age, had been married fourteen months, and had never had any periodical discharge from vagina, but on one occasion had a slight serous discharge. "Since girlhood she has had a small quantity of a whitish glairy fluid pass from the anus before the evacuation of fæcal matter; about once a month the discharge would continue for two or three days, on her going to stool; at these periods she had pains in the loins with general constitutional disturbance, and enlargement of the mammæ."

The vagina terminated in a cul-de-sac; the depth of which did not exceed an inch and a half. The patient has sexual desires and is gratified at the attempt at coition.

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Popliteal Aneurism—Ligature of the Femoral Artery, Cure.—Dr. Charles A. Pope records (*St. Louis Med. and Surg. Journ.*, July, 1850) a case of popliteal aneurism the size of a large orange, in a robust boatman thirty years of age, in which he applied a ligature to the femoral artery. The ligature came away on the twentieth day, and a complete cure was effected.

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Operation for Removal of an Ovarian Tumour, by large Abdominal Section.—Prof. Alden March, of Albany, has communicated to the New York State Medical Society an account of a case of ovariotomy, which is published in their Transactions.

The subject of this was a Mrs. P., 49 years of age, the mother of five children, the youngest of whom was seven years old. "The tumour was of three years' growth or more, having been accidentally discovered when it was about the size of a turkey's egg, in crowding between a bed-post and the wall of the room. For a year or two after, it gave her no alarm, or scarcely any anxiety; since it was neither painful nor tender, nor was its moderate increase in size calculated to excite serious apprehensions for the future; so that its existence was not made known to her physician until within eight or nine months of the day of the operation. During the last three or four months, the tumour had increased so rapidly that she appeared like a woman far advanced in pregnancy. At last she was so much incommoded as to be entirely prevented from sleeping in the horizontal position."

The operation was performed Dec. 10th, 1849, in the following manner:—

"An incision was commenced about four inches above the umbilicus, and carried in the line of the linea alba to near the pubis. The abdominal wall at the upper part was extremely thin, and by two or three strokes of the knife the tumour was readily brought into view. The wound was so extensive, being about 12 inches, and the tumour so much exposed, that it was readily discovered by the eye and hands to lie almost loose in the abdomen. To facilitate

its extraction, a puncture was made in the front and lower part of it, by which nearly or all of the water from the cyst was evacuated. The collapsed sac was followed down to its attachment to the right angle of the uterus, by which it was discovered that the ovarium had been dilated into a *monolocular* or single sac, attached to the uterus only by the broad ligament and Fallopian tube, which when twisted upon itself or gathered together was not larger than the little finger; around which, in mass, a three-threaded ligature was very tightly applied, not merely by the strength of a strong man, but by one of my own hands superadded. This was applied very near to the substance of the uterus; and next, all the substance included in the ligature was severed about half an inch from the point of its application. In using the sponge to cleanse out a trifle of blood that had fallen into the abdomen, the ligature was detached, when a brisk or rather an alarming hemorrhage ensued. The uterus was seized upon, drawn up, and the part containing the severed vessel, which was of the size of a crow's quill, or larger, was secured between the thumb and finger of my assistant, Dr. Armsby, until I could pass an armed needle with double ligature, the four ends of which I tied each way. The first did not prove effective in completely arresting the flow of blood. Another needle was passed in the same manner and secured as before, which answered the purpose. The patient must have lost nearly a pint of arterial blood, most of which fell into the cavity of the abdomen, and after having been properly removed, the wound in the abdominal wall was closed by eight interrupted sutures, and the ligatures brought out at the lower part of the wound. The abdomen was supported with long adhesive straps, a large sheet folded for a compress, and over the whole a towel or swathe applied after the manner of its use in obstetrical practice.

"The shock of the operation and the loss of blood being so severe for the patient, it was difficult to keep life in her for several hours. However, at the end of six hours, re-action began to take place. Although she was in the horizontal position during the operation, yet she became faint; which rendered it necessary for an assistant to make pressure with his hands on the bowels, to aid in keeping up the circulation. She also experienced a degree of nausea, which I was then rather disposed to attribute to the use of chloroform. Some four or five days after, there was a disposition to retch, but not sufficient to amount to much vomiting. This I attributed to the sympathetic irritation existing between the uterus and stomach. I believe this was all quieted by a little infusion of columbo.

"In the management of the case, I constantly and regularly used morphine, for some 10 or 12 days, and did not attempt to disturb the bowels with physic for eight or nine days. In the mean time, the bladder became distended with urine, and the bowels with air. The former was relieved by the use of the catheter, and the latter by passing up the rectum a large gum-elastic tube. By the adoption of these measures, the patient obtained great relief, and continued to improve from day to day in a very satisfactory manner.

"I think the sutures were removed on the eighth day, when union by the first intention was complete, at every point, except at the lower angle of the wound occupied by the ligatures, with which the divided arteries were severed. There was no redness, nor scarcely any tenderness in any part of the abdomen, except at the lower part, or in the region of the uterus. The ligatures had all come away, and the patient had so far recovered her health and strength as to be able to make a journey of over a hundred miles in one day, on the thirty-fourth day after the operation.

"The sac, when distended with its fluid, weighed eighteen pounds."

American Medical Association.—It should be remembered that the Association will hold its fourth annual meeting in Charleston on the first Tuesday (6th) of May, 1851. It is desirable that the different organized societies throughout the Union should appoint their delegates at an early period, and that they should take measures that the profession shall be fully represented in our great National Congress.

The names of delegates should be forwarded to Dr. H. W. De Saussure, Charleston, S. C.

Demonstrative Midwifery.—We have received a letter from Professor WHITE, of Buffalo, in which he complains that he has been misrepresented in the notice in our last No. of the trial of Dr. Horatio N. Loomis for libel; and as we are desirous on every occasion to do the fullest justice to all persons, we shall state the points to which he takes exception. These, if we do not misapprehend the Professor, are two.

1st. He finds fault with the remark of the reviewer, "It appears that the professor supposed he had discovered that it was possible by stethoscopic exploration of the abdomen of the pregnant female to determine beforehand the probable presentation of the child at the time of parturition," and that "to verify this discovery he induced Mary Watson, an unmarried female, pregnant the second time, to submit first to this exploration by some, if not all, the members of the graduating class under his direction."

Professor White denies that it can be shown from evidence on the trial that he supposed he had made this discovery, or that this was the object of the clinic. The object designed, he says, was "to demonstrate midwifery, and so stated at the time. For this purpose Mary Watson was induced to be confined at the college. Whilst there awaiting her confinement, the opportunity was embraced of permitting the class to listen to the intra-uterine sounds. On the application of the stethoscope, the fœtal heart was heard most plainly in a position which induced me to hazard the prediction that the occiput occupied a posterior position to the right of the spinal column. But the pretence that any discovery was claimed in incidental instructions is entirely gratuitous, and the assertion that it was undertaken on that purpose contradicted by the whole tenor of the testimony."

2d. He complains that he is unjustly accused of having committed a great error in allowing the labour to go on with the head of the child presenting in a faulty position, viz., the occiput to the right posteriorly and face to the left anteriorly.

With regard to the first of these points, we have only to say that the reviewer has honestly expressed the impressions made upon his own mind from a careful perusal of the evidence, and that as he has been misled, others may be equally so, we are therefore happy to have the opportunity of allowing Professor White to place the facts in their true light.

As to the second point, upon consideration of the subject, we cheerfully allow that the language of the reviewer was too strong. We consider the practice advocated by Dr. Denman, and the late Professor Dewees, than whom we cannot admit any higher authority in midwifery, to correct this presentation in the early stage by bringing the occiput into such a position as will permit it to emerge under the arch of the pubis, to be the best; but it must be admitted that the observations of Naegele show that nature herself will often accomplish this, and even where she fails to do so, we have several modern authorities for non-interference, and who maintain that though the labour is more protracted, still delivery may take place with safety to mother or child.

These we consider however as points of secondary interest—of importance only that injustice may not be done to individuals—they leave the main question, the propriety and advantage of demonstrative midwifery as practiced in Buffalo, unaffected. Respecting this, we must concur with the reviewer in all that is said of it both as a means of furnishing instruction and on the score of expediency and propriety. And these sentiments are not confined, as it is supposed by some, to a small minority of the profession. We have yet to meet with a single respectable physician in Philadelphia who does not concur in it; indeed, it is so far as we have been able to learn the unanimous sentiment of the profession in this city, and if we may judge from our sources of information, that of a large majority of the profession in the United States.

TRANSYLVANIA UNIVERSITY—MEDICAL DEPARTMENT.

SPRING TERM.

The Thirty-Third Session will open on the second Monday in March, 1851, under the direction of the following faculty, viz.:—

Benj. W. Dudley, M. D., Emeritus Professor of Surgery.
Robert Peter, M. D., Professor of Chemistry and Pharmacy.
Ethelbert L. Dudley, M. D., Professor of the Principles and Practice of Surgery.
Samuel Annan, M. D., Professor of the Theory and Practice of Medicine.
Henry M. Skillman, M. D., Professor of General and Pathological Anatomy and Physiology.
John R. Allen, M. D., Professor of Materia Medica and Therapeutics.
Samuel M. Letcher, M. D., Professor of Obstetrics and the Diseases of Women and Children.
James M. Bush, M. D., Professor of Special and Surgical Anatomy.
James M. Bruce, M. D., Demonstrator of Anatomy.

The cost of a full course is Seventy dollars, invariably in advance. The Matriculation and Library ticket is five dollars. The Dissecting ticket, eight dollars. The Graduation Fee is twenty-five dollars. Boarding and lodging from $2 to $3 per week.

ROBERT PETER, M. D., *Dean of the Faculty.*

Lexington, Ky., Dec., 1850.

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The Spring Course of Lectures for 1851 will be commenced on Monday, March 17th, 1851. The General Introductory will be given by Dr. James Bryan. Degrees will be conferred about the 17th of July, 1851.

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James McClintock, M. D., Principles and Practice of Surgery.
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The fee for the respective tickets may be paid to each member of the Faculty, or the whole amount may be paid to the Dean, who will issue a certificate which will entitle the student to the ticket of each Professor.

For further information, inquire of

JAMES McCLINTOCK, M. D., Dean,
No. 1 N. Eleventh St.

Philadelphia, *Dec.* 14, 1850.

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WM. BYRD PAGE, M. D, 264 *Walnut Street.*

MEDICAL INSTITUTE OF PHILADELPHIA, 1851.

The Annual Course of Lectures will be commenced on the 1st Monday in April, and be continued during the Summer, with the usual recess.

LECTURES ON

General and Special Anatomy,	By JOHN NEILL, M. D.
Materia Medica and Therapeutics,	" J. J. REESE, M. D.
Obstetrics and Diseases of Women,	" WM. B. PAGE, M. D.
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SPRING TERM, 1851.

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CHARLES A. LEE, *Dean.*

N. B.—The profession will take notice that the Lecture Term in Geneva College will hereafter be changed from the Fall to the Spring of the year, to commence the ensuing March, 1851. This change in the time of delivering the Lectures is made solely with the view of accommodating that large class of Medical Students who cannot conveniently attend during the Fall and Winter months, but whose term of study expires in the Spring.

GENEVA, *March*, 1850.

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JOHN J. REESE, M. D., *Lecturer on Materia Medica in the Phila. Med. Institute.*

PHILADELPHIA, *March*, 1850.

THE

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OF THE MEDICAL SCIENCES

FOR APRIL 1851.

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John Neill, M. D., *Demonstrator of Anatomy in the University of Pennsylvania.*

Charles W. Parsons, M. D., *of Providence, R. I.*

Geo. W. Patterson, M. D., *of Philadelphia.*

E. R. Peaslee, M. D., *Professor of Surgery in the Medical School of Maine.*

Benjamin W. Robinson, M. D., *of Fayetteville, N. C.*

F. W. Sargent, M. D., *one of the Physicians to the Girard College.*

Henry H. Smith, M. D., *Surgeon to St. Joseph's Hospital, Philadelphia.*

Julius S. Taylor, M. D., *of Carrolton, Montgomery Co., Ohio.*

E. Townsend, D. D. S., *Philadelphia.*

J. Mason Warren, M. D., *one of the Surgeons to the Massachusetts General Hospital.*

John Watson, M. D., *Surgeon to the New York Hospital.*

H. W. Williams, M. D., *of Boston.*

J. Wilson, Jr., M. D., *formerly of Philadelphia.*

TO READERS AND CORRESPONDENTS.

Dr. Warren's cases of Occlusion of the Vagina relieved by operation, and Dr. Thayer's cases of Apoplexy and the various forms of softening of the Brain, are in type for our next number.

The communications of Drs. W. M. Wood, G. W. Baskin, R. McSherry, J. H. Rauch, and W. J. Barnett, are on file for publication. We have other papers under consideration, in relation to which their authors shall hear from us at an early period.

The following works have been received:—

Essays and Notes on the Physiology and Diseases of Women, and on Practical Midwifery. By John Roberton, formerly Senior-Surgeon in ordinary to the Manchester and Salford Lying-in Hospital and Dispensary for the Diseases of Women and Children. London: John Churchill, 1851. (From the Author.)

Notes of a recent visit to several Provincial Asylums for the Insane in France. By John Webster, M. D., F. R. S. London, 1850. (From the Author.)

On the Health of London during the six months terminating Sept. 28th, 1850. By John Webster, M. D., F. R. S. London, 1850. (From the Author.)

First Principles of Medicine. By Archibald Billing, M. D., F. R. S., the second American from the revised and improved fifth London edition. Philadelphia: Lea & Blanchard, 1851. (From the Publishers.)

Operative Surgery. By Frederic C. Skey, F. R. S. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

New Remedies: with Formulæ for their Administration. By Robley Dunglison, M. D., Professor of Inst. of Medicine, &c., in Jefferson Medical College. Sixth edition, with extensive additions. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

A Treatise on Dislocations and Fractures of the Joints. By Sir Astley Cooper, Bart., F. R. S., &c. A new edition, much enlarged, edited by Bransby B. Cooper, F. R. S., Surgeon to Guy's Hospital. With additional observations, and a memoir of the author. A new American edition. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

The Dissector; or Practical and Surgical Anatomy. By Erasmus Wilson, Author of a "System of Human Anatomy," &c. With one hundred and fifteen illustrations. Edited by Paul B. Goddard, M. D. A new and improved edition. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

Report of a General Plan for the Promotion of Public and Personal Health, revised, prepared, and recommended, by the Commissioners appointed under a Resolve of the Legislature of Massachusetts relating to a Sanitary Survey of the State. Presented April 25th, 1850. Boston, 1850. (From the Author, L. Shattuck, Esq.)

Elements of Medical Jurisprudence. By Theodoric Romeyn Beck, M. D., LL.D., Professor of Materia Medica in the Albany Medical College; and John B. Beck, M. D., Professor of Materia Medica and Medical Jurisprudence in the College of Physicians and Surgeons of the city of New York. Tenth edition, Vol. II. Albany, 1851. (From Dr. T. R. Beck.)

Reduction of Strangulated Hernia in Mass. By Geo. C. Blackman, M. D. New York, 1851. (From the Author.)

A History of the Disease usually called Typhoid Fever, as it has appeared in Georgetown and its vicinity, with some Reflections as to its Causes and Nature.

By W. L. Sutton, M. D., Georgetown, Ky. Louisville, 1850. (From the Author.)

Illustrations of Syphilitic Disease. By Philip Ricord, D. M. P. &c. Translated from the French by Thomas F. Betton, M. D., &c. With the addition of a History of Syphilis, and a complete Bibliography and Formulary of Remedies, collated and arranged by Paul B. Goddard, M. D. With fifty large quarto plates, containing one hundred and seventeen beautifully coloured illustrations. Phila., A. Hart, late Carey & Hart, 1851, 4to. (From the Publisher.)

A Practical Treatise on Dental Medicine, being a Compendium of Medical Science, as connected with the study of Dental Surgery. By Thos. E. Bond, M. D., Prof. of Dental Pathol. and Therap. in Balt. Coll. Dental Surgery. Phila., Lindsay & Blakiston, 1851. (From the Publishers.)

Ether and Chloroform, their employment in Surgery, Dentistry, Midwifery, Therapeutics, &c. By J. F. B. Flagg, M. D., Surgeon Dentist. Phila., Lindsay & Blakiston, 1851. (From the Publishers.)

The Medical Student's Guide in Extracting Teeth, with numerous cases in the Surgical Branch of Dentistry, with illustrations. By S. S. Horner, Practical Dentist. Phila., Lindsay & Blakiston, 1851. (From the Publishers.)

History of Medical Education and Institutions in the United States, from the first settlement of the British Colonies to the year 1850; with a chapter on the present condition and wants of the profession, and the means necessary for supplying those wants, and elevating the character and extending the usefulness of the whole profession. By N. S. Davis, M. D., Prof. of Prin. & Pract. of Med., in Rush Med. Coll., &c. &c. Chicago, 1851. (From the Author.)

On Diseases of Menstruation and Ovarian Inflammation, in connection with Sterility, Pelvic Tumours, and Affections of the Womb. By Edward John Tilt, M. D., Physician to the Farrington General Dispensary. New York. S. S. & W. Wood, 1851. (From the Publishers.)

Consumption of the Lungs, or Decline: the Causes, Symptoms, and Rational Treatment, with the Means of Prevention. By T. H. Yeoman, M. D. Revised by a Boston Physician. Boston, 1850.

Annual Report of the Royal Edinburgh Asylum for the Insane, for the year 1849. Edinburgh, 1850.

Report of the Board of Visitors of the Boston Lunatic Hospital, containing a statement of the condition of that Institution, and transmitting the Annual Report of the Superintendent for 1850. Boston, 1850. (From Dr. C. H. Stedman.)

Twenty-third Annual Report of the President and Directors of the Western Lunatic Asylum, 1850. Richmond, 1850. (From Dr. F. T. Stribling.)

An Address delivered before the Erie County Medical Society, Jan. 7th, 1851. By Rev. Wm. Flint, M. D. Erie, 1851.

Report of the Pennsylvania Hospital for the Insane, for the year 1850. By Thomas S. Kirkbride, M. D., Phys. to the Institution. Phila. 1851. (From the Author.)

The Twenty-second Annual Report of the Inspectors of the Eastern State Penitentiary of Pennsylvania. Transmitted to the Senate and House of Representatives, March, 1851. Philadelphia, 1850. (From R. A. Given, M. D.)

Annual Report of the Officers of the New Jersey State Lunatic Asylum, at Trenton, for the year 1850. Trenton, 1851. (From Dr. H. Buttolph, Superintendent.)

An Introductory Lecture delivered at the opening of the thirty-first Session of the Medical College of Ohio, Nov. 4th, 1850. By John Bell, M.D., Professor of Theory and Practice of Medicine, &c. &c. Cincinnati, 1850. (From the Author.)

Impediments to the Study of Medicine. A Lecture Introductory to the course of Practice of Medicine. By J. K. Mitchell, M.D., Prof. of Pract. Med. Delivered Nov. 18th, 1850. Phila. 1850. (From the Author.)

Success in the Medical Profession. An Introductory Lecture, delivered at the Massachusetts Medical College, Nov. 6th, 1850. By JOHN WARE, M.D., Hersey Prof. of the Theory and Practice of Medicine, in Harvard University, Boston, 1851. (From the Author.)

Proceedings of the Convention and Missouri State Medical Association, held at St. Louis in Nov. 1850. St. Louis, 1850.

Constitution, By-Laws, and Proceedings of the Iowa State Medical and Chirurgical Society organized June 19, 1850. Burlington, 1850.

The Memorial of M. B. Wright in relation to the Medical College of Ohio; the official misconduct of its trustees; the mal-administration of its affairs; and the dangerous position of the Commercial Hospital, read to the forty-ninth General Assembly. Columbus, 1851. (From the Author.)

Minority Report of the Trustees of the Medical College of Ohio. Senate, Jan. 8, 1851.

Catalogue and Circular of the Albany Medical College. Albany, 1851.

First Annual Announcement of the Medical Department of the University of Nashville. Nashville, 1851.

Circular of the Institution for the Education of Idiots, Imbeciles, and Children of Retarded Development of Mind. Barre, Mass., Jan. 1, 1851. Worcester, 1851. (From H. B. Wilbur, M. D.)

The following Journals have been received in exchange:—

Gazette Médicale de Paris, July, August, September, October, 1850.

Revue Médicale Française et Etrangère. Par J. B. CAYOL, Prof. de Cliniques, July, August, September, 1850.

Journal des Connaissances Médico-Chirurgicales. Publié par le Dr. A. MARTIN LAUZER. July, August, September, October, 1850.

Annales Médico-Psychologiques. Par les Docteurs BAILLARGER, BRIERRE DE BOISMONT, ET CERISE. July, October, 1850.

Journal des Connaissances Médicales Pratiques et de Pharmacologie. July, August, 1850.

The Edinburgh Medical and Surgical Journal. Jan., 1851.

The London Medical Gazette. Dec., 1850, Jan., Feb., 1851.

The British and Foreign Medico-Chirurgical Review. Jan., 1851.

The Monthly Journal of Medical Science. Jan., Feb., March, 1851.

London Journal of Medicine. Jan., Feb., March, 1851.

The Journal of Psychological Medicine and Mental Pathology. Edited by FORBES WINSLOW, M. D. Jan., 1851.

The Half-Yearly Abstract of the Medical Sciences. Edited by W. H. RANKIN, M. D. Cantab. vol. xii. July—Dec., 1850.

The Dublin Quarterly Journal of Medical Science. Feb., 1851.

The Institute, a Journal of Medical, Surgical, and Obstetrical Science and Practice, and Philosophical Gazette. Oct., Nov., Dec., 1850, Jan., Feb., 1851.

The Retrospect of Medicine. By W. BRAITHWAITE, July—Dec., 1850.

Dublin Medical Press. Nov., Dec., 1850, Jan., Feb., 1851.

The Western Lancet. Edited by L. M. LAWSON, M. D., and GEO. MENDENHALL, M. D. Jan., Feb., March, 1851.

Northern Lancet and Gazette of Legal Medicine. Edited by F. J. D. AVIGNON, M. D., and H. NELSON, M. D. Jan., Feb., March, 1851.

Buffalo Medical Journal. Edited by AUSTIN FLINT, M. D. Jan., Feb., March, 1851.

The American Journal of Insanity. Published by the New York State Lunatic Asylum. Utica, Jan., 1851.

The New Jersey Medical and Surgical Reporter, and Transactions of the New

Jersey Medical Society. Edited by Joseph Parrish, M.D. Burlington, Jan., 1851.

The Charleston Medical Journal and Review. Edited by Dr. J. Cain, M.D., and F. P. Porcher, M.D. Jan., March, 1851.

The New Orleans Medical and Surgical Journal. Edited by A. Hester, M.D., Jan., March, 1851.

The New York Medical Gazette and Journal of Health. Edited and published by D. M. Reese, M.D. Jan., Feb., March, 1851.

Western Journal of Medicine and Surgery. Edited by L. P. Yandell, M.D., and T. S. Bell, M.D. Jan., Feb., March, 1851.

The North Western Medical and Surgical Journal. Edited by Dr. Evans and Meek. Jan., 1851.

The Ohio Medical and Surgical Journal. Edited by Richard L. Howard, M.D. March, 1851.

The American Journal of Science and the Arts. Conducted by Professors B. Silliman, B. Silliman, Jun., and Jas. D. Dana, aided in the Department of Chemistry and Physics by Dr. Walcott Gibbs. January, March, 1851.

The New York Register of Medicine and Pharmacy. Edited by C. D. Griswold, M. D. January, February, March, 1850.

The Western Medico-Chirurgical Journal. Edited by Drs. J. F. Sandford and S. G. Armor. December, 1850. January 7, February 1, 1851.

Southern Medical and Surgical Journal. Edited by L. A. Dugas, M. D. January, February, March, 1851.

The New York Journal of Medicine and the Collateral Sciences. Edited by S. S. Purple, M. D. January, March, 1851.

St. Louis Medical and Surgical Journal. October, December, 1850, Jan., Feb., 1851.

The American Journal of Pharmacy. Published by Authority of the Philadelphia College of Pharmacy. Edited by William Procter, Jr., Professor of Pharmacy. January, 1851.

The Medical Examiner and Record of Medical Science. Edited by F. G. Smith, M. D. and J. B. Biddle, M. D. January, February, March, 1851.

The Stethoscope and Virginia Medical Gazette. Edited by F. C. Gooch, M. D. January, February, March, 1851.

Nordamerikanischer Monatsbericht für Natur-und Heilkunde Redigirt. Von Dr. W. Keller und Dr. H. Tiedemann. January, February, March, 1851.

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to Isaac Hays, M.D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and sent (carriage paid) under cover, to John Miller, Henrietta Street, Covent Garden, *London;* or to John Wiley, or G. P. Putnam, *New York;* or W. D. Ticknor, *Boston;* or M. Hector Bossange, Lib. quai Voltaire, No. 11, *Paris*, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

All remittances of money, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

☞ The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

CONTENTS

OF THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

NO. XLII. NEW SERIES.

APRIL, 1851.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. An Account of two remarkable Indian Dwarfs exhibited in Boston under the name of Aztec Children. By J. Mason Warren, M. D. [With two plates.] - - - - - - - - - - - - 285

II. Case of Gunshot Wound in Left Axilla—Ligature of Left Subclavian, and subsequent Ligatures of Brachial and Subscapular Arteries. By John Watson, M. D., Surgeon of the New York Hospital. Reported by William H. Morton, M. D., of Patterson, N. J. - - - - - 294

III. Observations on the Dumb-Bell Urinary Deposit. By John Bacon, Jr., M. D. (Read before the Boston Society for Medical Observations, December 16th, 1850.) - - - - - - - - 297

IV. On some of the Remote Effects of Injuries of Nerves. By Charles W. Parsons, M. D. (Read before the Rhode Island Medical Society, Providence, December 18th, 1850.) - - - - - - - 306

V. Extracts from the Records of the Boston Society for Medical Improvement. By Wm. W. Morland, M. D., Secretary. - - - 319

VI. Remarkable Obstetrical Cases. By William P. Johnston, M. D., Professor of Obstetrics, &c., in the National Medical College, Washington, D. C. [With a wood-cut.] - - - - - - - 340

VII. Hot Water in Sprains. By Samuel Jackson, M. D., formerly of Northumberland. - - - - - - - - - 344

VIII. Report on Idiotic Crania, Idiocy, and Cretinism. By Samuel Kneeland, Jr., M. D., Boston. (Read before the Boston Society for Medical Improvement, Jan. 13, 1851.) - - - - - - - 349

IX. Case of Hæmoptysis Neonatorum. By Charles G. Adams, Jr., M. D., of Keene, N. H. - - - - - - - - - - 364

X. On a new form of Phosphate of Lime in Crystals; as it occurs in Putrefying Urine. By Jno. C. Dalton, Jr., M. D. (Read before the Boston Society for Medical Observation, Feb. 17, 1851.) [With seven wood-cuts.] - - - - - - - - - - - 368

XI. A case of Double Ovarian Dropsy—both Ovaries successfully removed by the large Peritoneal Section. By E. R. Peaslee, A. M., M. D., Prof. of Surgery in the Medical School of Maine. - - - - - 371

XII. Cases in Surgical Practice. By R. H. McIlvaine, M. D., Charlotte, N. C. - - - - - - - - - - - 387

REVIEWS.

ART. PAGE

XIII. Report of the Sanitary Commission of Massachusetts, made by the Legislature in 1850. Printed by order of the Legislature. Boston: Dutton & Wentworth, State Printers, 1850. 8vo. pp. 544. - - 391

XIV. Musée d'Anatomie de la Faculté de Médecine de Strasbourg—Histoire des Polypes du Larynx. Par C. H. Ehrmann, Professeur à la Faculté de Médecine de Strasbourg, &c. &c. &c. Fol., avec six planches lithographiées: pp. 58. Strasbourg, 1850.

Anatomical Museum of the Faculty of Medicine in Strasburg—History of Polypus of the Larynx. By C. H. Ehrmann, Professor to the Faculty of Medicine of Strasburg, &c. &c. &c. Fol., with six lithographic plates: pp. 58. Strasburg, 1850. - - - - - - - 410

BIBLIOGRAPHICAL NOTICES.

XV. Elements of Medical Jurisprudence. By Theodoric Romeyn Beck, M. D., LL. D., Prof. Mat. Med. in the Albany Medical College, &c. &c., and John B. Beck, M. D., Prof. Mat. Med. and Med. Jurisp. in the College of Physicians and Surgeons of the City of New York, &c. &c. Tenth edition. Vols. I. and II. Albany, Little & Co. 1851: 8vo. pp. 866—948.

Medical Jurisprudence. By Alfred S. Taylor, F. R. S., &c. &c. Second American, from the Third London edition; with Notes and Additions by R. Eglesfeld Griffith, M. D., &c. Philadelphia, Lea & Blanchard, 1851: 8vo. pp. 670. - - - - - - - 417

XVI. A History of the Disease usually called Typhoid Fever, as it has appeared in Georgetown and its Vicinity; with some Reflections as to its Causes and Nature. By W. L. Sutton, M. D., Georgetown, Ky. Maxwell & Co., Louisville, 1850: 8vo. pp. 127. - - - - 418

XVII. Illustrations of Syphilitic Disease. By Philip Ricord, D. M. P., Surgeon to the Venereal Hospital (Hôpital du midi), Paris, &c. &c. Translated from the French by Thomas F. Betton, M. D., M. A. N. S., Fellow of the College of Physicians of Philadelphia, &c. With the addition of a History of Syphilis, and a complete Bibliography and Formulary of Remedies, collated and arranged by Paul B. Goddard, M. D.; with fifty large quarto plates, comprising 117 beautifully coloured Illustrations. Philadelphia, A. Hart, late Carey and Hart, 1851. - - - 426

XVIII. On Anæsthesia and Anæsthetic Substances generally; being an Experimental Inquiry into their Nature, Properties, and Action; their Comparative Value and Danger; and the best Means of counteracting the Effect of an Overdose. By Thomas Nunnely, Esq., F. R. C. S. E., &c. &c. - - - - - - - - - - 429

XIX. Sleep Psychologically considered with reference to Sensation and Memory. By Blanchard Fosgate, M. D., Physician to the New York State Prison at Auburn. New York, George P. Putnam, 1850: 12mo. pp. 188. - - - - - - - - - - 439

XX. Notes of a Recent Visit to several Provincial Asylums for the Insane in France. By John Webster, M. D., F. R. S., Fellow of the Royal College of Physicians, Consulting Physician of St. George and St. James's Dispensary, &c. London, 1850: pp. 35. - - - - - 442

XXI. A Practical Treatise on Dental Medicine, being a Compendium of Medical Science as connected with the Study of Dental Surgery. By Thos. E. Bond, A. M., M. D., Professor of Special Pathology and Therapeutics in the Baltimore College of Dental Surgery. Philadelphia, 1851: pp. 324. - - - - - - - - 444

XXII. Address before the American Medical Association, at the Anniver-

ART. PAGE
sary Meeting in Cincinnati, May 8th, 1850. By John C. Warren, M. D., President of the Association. Boston, 1850: 8vo. pp. 65. - - 447
XXIII. New Remedies, with Formulæ for their Administration. By Robley Dunglison, M. D., Prof. Inst. Med. &c., in Jeff. Med. Coll. Sixth edition, with extensive additions. Philad., Blanchard & Lea, 1851: 8vo. pp. 755. - - - - - - - - - - 447
XXIV. On Diseases of Menstruation and Ovarian Inflammation, in connection with Sterility, Pelvic Tumours, and Affections of the Womb. By Edward John Tilt, M. D., &c. &c. New York, Saml. S. & W. Wood, 1851: 12mo. pp. 286. - - - - - - - 448
XXV. First Principles of Medicine. By Archibald Billing, M. D., A. M., F. R. S., &c. &c. Second American, from the revised and improved fifth London edition. Philad., Lea and Blanchard, 1851: 8vo. pp. 246. - 448
XXVI. Review of Chemistry for Students, adapted to the courses as taught in the principal Medical Schools of the United States. By John G. Murphy, M. D. Philadelphia, Lindsay and Blakiston, 1851: 12mo. pp. 328. - - - - - - - - - - 448
XXVII. The Uses and Abuses of Air; showing its Influence in sustaining Life, and producing Disease; with remarks on the Ventilation of Houses. 449
XXVIII. Consumption of the Lungs, or Decline; the Causes, Symptoms, and Rational Treatment, with the means of Prevention. By T. H. Yeoman, M. D. Revised by a Boston Physician. Boston & Cambridge, J. Monroe & Co., 1850: 12mo. pp. 103. - - - - - - 449
XXIX. An Appeal to the Public in behalf of a Hospital for Sick Children. London, 1850. - - - - - - - - - 450

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

FOREIGN INTELLIGENCE.

Anatomy and Physiology.

PAGE
1. Weight of the Brain at different periods of life. By Thos. B. Peacock, M. D. - - - 451
2. Anatomy of the Subcutaneous Bursæ. By Mr. Wm. Coulson. 453
3. On the Round Ligament of the Uterus. By G. Rainey, Esq. - 455
4. New Muscles of the Urethra. By H. Hancock, Esq. - - 456

PAGE
5. Fistula of Stomach. By Dr. Robertson. - - - - 457
6. Researches to prove the Non-vascularity of certain Animal Tissues. By Mr. Toynbee. - 457
7. On the Absorption of Alimentary Substances, and the Functions of the Lacteals. By M. Bernard. - - - - - 457

Materia Medica and Pharmacy.

8. Evil Effects following the Incautious Administration of Chloroform. By Dr. Bagot. - - 458
9. Effects of Chlorinated Hydrochloric Ether on Animals. By M. Flourens. - - - - 459
10. On the Inhalation of various Medicinal Substances. By Dr. Snow. - - - - - 459
11. On the Physiological Effects of Picrotoxine, or the Active Principle of Cocculus Indicus. By Dr. Routh. - - - - 460
12. On Iodognosis. By M. Dorvault. - - - - - 461
13. New preparation of Phosphate of Iron. Dr. Routh. - - 462

Medical Pathology and Therapeutics, and Practical Medicine.

14. The Chemistry of Tubercle, and the Special Pathological Anatomy of Tuberculosis. By Henry Ancell, Esq. - - 462
15. On Elastic Fibres found in the Sputa of Phthisis. By Professor Schroeder Van der Kolk. - 465
16. Is Fibre an Essential Element in the Structure of Cancer? By Dr. Redfern. - - - 465
17. Value of a Chemical and Microscopical Examination of the Urine as a Means of Diagnosis in Renal Diseases. By Dr. Geo. Johnson. - - - - - 466
18. Cases of Renal Disease. By Dr. George Johnson. - - 467
19. Diagnosis of Fatty Degeneration of Kidney. By Dr. Geo. Johnson. - - - - - 474
20. On a Species of Atrophy of the Spinal Marrow. By Dr. Namias. 476
21. Vaccination as a Preventive of Small-pox. By Dr. Alexander Knox. - - - - 477
22. On Vaccination and Revaccination. By M. Craninx. - - 477
23. Results of Revaccination in the Prussian Army during 1849. 478
24. Abortive Treatment of Variola by the Application of Collodion. By M. Aran. - - - - 479
25. Combination of Auscultation and Percussion. By Dr. Roger. 479
26. On Auscultation in the Pneumonia of Infants. By MM. Trousseau and Lasègue. - - 480
27. Local Paralysis in Infancy. By Dr. Simpson. - - - 481
28. Recent Epidemic of Scarlatina at Berlin. By Dr. Helfft. - 482
29. Cretinism. By M. Boudin. - 483
30. Causes and Cure of Goitre. - 483
31. Chloroform in Lead-Colic. By Dr. Aran. - - - - 484
32. On the Treatment of Itch. By MM. Bazin and Bourguignon. - - - - - - 485
33. Disease of the Heart and Chorea. By M. Trousseau. - 485
34. Sulphate of Zinc in Chorea. - 486
35. On the Treatment of Obesity. By T. K. Chambers, M. D. - 488

Surgical Pathology and Therapeutics, and Operative Surgery.

36. Case illustrating the Difficulties of Diagnosis of Morbid Growths from the Upper Jaw. By Prescott Hewett. - - 491
37. Results of the Use of Chloroform in 9000 cases at St. Bartholomew's Hospital. By Mr. Skey. - - - - - 498
38. Pathology and Treatment of enlarged Subcutaneous Bursæ. By Mr. Wm. Coulson. - - 500
39. Treatment of certain cases of Hare-lip. By E. A. Lloyd, Esq. 505
40. Excision of the Head of the Femur. By Mr. Haynes Walton. - - - - - - 508
41. Case of Ovariotomy; Spontaneous Disappearance of Ovarian Tumours. By George Norman. - - - - - 509
42. Case of Tumour for which the Operation of Ovariotomy was attempted more than twenty-five years ago, with Dissection. By Dr. Taylor. - - - - 511
43. Femoral Aneurism cured by Compression. By Mr. Smyly. 512
44. New Instruments for the Cure

PAGE

of Stricture. By Mr. Thomas H. Wakley. - - - - 513
45. Rupture of the Crucial Ligament of the Knee-joint. By Dr. Stark. - - - - - 515
46. Cotton Wadding as an Application to Bed-Sores and Varicose Ulcers. - - - - 515

Ophthalmology.

47. Preparatory and After-treatment in Cataract Operations. By Arthur Jacob, M. D. - - 516

Midwifery.

48. Case of Protrusion of the Hand of the Child through the Walls of the Vagina and Rectum in a case of Head Presentation. By Dr. James Gray. - - - 519
49. Central Laceration of the Perineum. By Dr. Thatcher. - 520
50. Case in which the Cæsarian Section was performed, with remarks on the peculiar sources of danger attendant on the Operation. By Charles West, M. D. 521
51. Case of Cæsarian Section. By Henry Oldham, M. D. - - 522
52. The Cæsarian Section and Premature Labour. By Dr. Robert Lee. - - - - 523
53. Injury of Cranium and Wound of the Brain in a New-born Child — Recovery. By Dr. Lagae. - - - - - 524
54. Quintuple Birth. - - - 524
55. Polypous Excrescences from Umbilicus in New-born Children. By Dr. Farrège. - - 524

Medical Jurisprudence and Toxicology.

56. Identity. - - - - 524
57. Abortion. - - - - 525
58. Ancient Trial for Impotence. 525
59. Absence of Milk after Delivery. 525
60. Present Law of Virginia concerning the Crime of Abortion. 525
61. Legal Definition of what constitutes a Wound. - - - 526
62. Procuring Abortion, or rather Premature Birth. - - - 526
63. Poisoning with Cocculus Indicus. - - - - - 527
64. The Diseases to which Manufacturers of the Sulphate of Quinine are liable. By M. A. Chevalier. - - - - 528
65. Curare, Researches on it by MM. Pelouse and Cl. Bernard. 528
66. A Case of Abortion brought on by Savin, and followed by perforation of the Stomach, and Death. By James H. Salisbury, M. D. - - - - - 529

AMERICAN INTELLIGENCE.

Original Communications.

Wills Hospital—Service of Dr. Isaac Hays—Cases discharged from Oct. 1st, 1850, to Jan. 1st, 1851. By A. F. Macintyre, M. D. 531
On the Importance of establishing a Lectureship on Dental Surgery in Medical Colleges. By E. B. Gardette. - - - 533

Domestic Summary.

Femoral Aneurism cured by Compression. By Dr. W. H. Church. 535
Coup de Soleil, or Sun Stroke. By Frederick D. Lente, M. D. 536
Case of Cæsarian Section. By H. M. Jeter, M. D. - - - 538
On the Law governing the distribution of the Striped and Un-

PAGE

striped Muscular Fibre. By Dr. H. F. Campbell. - - - 539
Prof. J. E. Cooke's Antilithic Paste. 540
The Difficulty of Breathing from an Overdose of Opium relieved by Inhaling the Vapour of Water. By Dr. C. W. Wright. 540
Refracture of a Leg to Improve Defective Surgery. - - - 541
Aphonia and Obstinate Cough from Prolongation of the Uvula. By Dr. T. C. Ready. - - 541

PAGE

Two Cases of Mumps, with Metastasis to the Brain, both terminating fatally. By Dr. Harvey Lindsly. - - - - - 542
Dislocation of the Radius and Ulna backwards at the Elbow. By Professor Dugas. - - - 543
An Act to Promote Medical Inquiry and Instruction. By Mr. Tuthill. - - - - - 544
American Medical Association. - 544



AZTEC DWARF (MALE).



AZTEC DWARF (FEMALE).

THE

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ART. I.—*An Account of two remarkable Indian Dwarfs exhibited in Boston under the name of Aztec Children.* By J. MASON WARREN, M. D. [With two plates.]

Two children have appeared in Boston so remarkable for their smallness of stature and the peculiarities of their mental faculties, that they seem to merit some public notice. I propose to state, in the following paper, simple matters of fact, without attempting any speculations in regard to them.

The children are a boy and girl, and from the appearance offered by their dentition, hereafter to be given, the former is from seven to eight years of age, the latter from four to six; allowance being made for a retarded condition of these organs, on account of the otherwise abnormal want of development of the whole body. The boy is thirty-three and three-quarters inches in height, and his weight twenty and three-eighths pounds. The girl is twenty-nine and a half inches high, and her weight seventeen pounds. Their skin is of a dark yellowish cast, lighter than what is generally attributed to the Indian in this part of the country, and somewhat darker than that of the mulatto. The hair at the middle parting rises at an inch distant from the root of the nose, but on each side a fine hair descends quite to the edge of the orbit. In the boy, it is black, coarse, and quite stiff—in the girl, wavy and curled. The eyes are large and lustrous. The nose of the boy is quite prominent, and as seen in profile somewhat arched, but seen in front it is a little flattened at the apex; the nostrils are expanded, this feature being less marked in the girl than in the boy. The line of the nostril is oblique, instead of being longitudinal as in the Caucasian race. The separation of the cartilages at the apex is not easily distinguished. The supra-orbitar ridges are very prominent, the head

receding directly behind. There are no superciliary prominences or tubercles. In the boy a ridge, with its convexity towards the median line, extends from the external angular process of the frontal bone along the edge of the parietal bone, and nearly joins the elevated occipital ridge. The occipital bone is much flattened from behind forwards. The continuation of the sagittal suture through the frontal bone to the ossa nasi, corresponding with the fœtal division, is also elevated into a ridge in the male, but not in the female. A circumstance of some interest is the situation of the external auditory foramen, which is much more in a line with the orbit than usual, a fact I have observed in some small heads of low intelligence. There are no indications that artificial compression has ever been used.

In both the children, the upper jaw projects considerably beyond the lower, the mouth remaining partly open in the boy from a dropping of the lower jaw, which leaves the teeth exposed.

The combination of these two circumstances, connected with a slight escape of the saliva, which may be partly attributed to the irritation caused by dentition, gives a more unintelligent expression to the face when at rest than it would otherwise have. The upper lip is large, and appears swollen as in strumous subjects. The chin is receding.

The anatomical proportions of the girl seem to be in most respects as perfect as could be desired; with regard to the boy, the following are worthy of notice. The forearm is generally maintained in a slightly bent position, and in a state of semi-pronation, permitting neither entire extension nor perfect supination, forming laterally an external obtuse angle with the arm. The little finger is malformed, being shorter than usual, its tip extending only a little beyond the middle joint of the adjacent one; the last joint is inflexible, and the natural folds on the back of the phalanges, which denote its position, are wanting. A slightly webbed appearance is given to the fingers by an increased development of the interphalangeal folds of skin. The hand itself is quite short, broad, and thick.

With regard to the organs of generation, there is a slight malformation of the penis, the urethral aperture being more open than usual, thus approximating to hypospadias. The frenum is wanting. The testicles have not descended into the scrotum, and cannot be distinguished in the groin.

The position generally assumed by these children is peculiar, and may well be compared to that of some of the Simian tribe. The head, particularly in the boy, is thrown forward, as if placed more in advance on the spine than usual. This is accompanied with a slight stoop of the shoulders, and bending of the knees, the whole attitude being well delineated in the accompanying graphic sketches by Dr. Dalton. (See Plates I. and II.) The motion is unsteady, as in the tribe of animals already referred to, the boy having a swinging gait, not unlike that of a person slightly intoxicated.

The measurements of some parts of the body and skeleton are as follows:

Boy.—Height - -	33¾ inches.	
Spine - - -	16 "	
Arm (humerus) -	6¾ "	
Forearm - -	5½ "	
Hand, length - -	4 "	Breadth 2¼ inches.
Femur - -	9 "	
Tibia - - -	7½ "	
Left lower extremity -	17½ "	Foot 5 inches.
Circumference of chest -	18½ "	
" waist -	17 "	
" pelvis	17 "	
Head.—Circumference over hair and scalp - -	13 "	
Antero-posterior diameter	4¼ "	
Bi-temporal " not quite	4 "	
From one auditory passage to the other, around the forehead	7½ "	
Do. over top of head -	8 "	
Do. around the occiput -	5½ "	
Fronto-occipital curve -	8 "	
Ear - - -	2 "	
Facial angle - -	60 "	

The measures of the head were taken over the hair, and of course include the scalp, so that, if allowance be made for these, the actual measurement of the bone would be at least an inch less in the circumference of the head, and proportionately in the others.

The following is the state of dentition in the boy, being in part anomalous. The first four permanent molars, which appear between six or seven years of age, are present.

Upper Jaw.—2 Permanent molars.
3 of the deciduous molars—one on the left, two on the right, having lost one since he has been here.
2 Cuspidati, both probably of first set.
2 Lateral incisors, deciduous.

Lower Jaw.—2 Permanent molars.
2 Deciduous molars.
2 Permanent central incisors.
2 Lateral incisors.

On the left side of the lower jaw, in the place of the cuspidatus, is a large worn tooth, similar to a molar of the first set, and which might easily be taken for one; there is no corresponding tooth on the other side, the cuspidatus being wanting, and the first milk molar coming next to the lateral incisor.

The pulse, observed at different times, varied from 80 to 100, irregular in rhythm, much increased on the slightest exertion.

Girl.—Pulse regular, from 80 to 90. Resp. 20.

Height - -	29½ inches.	
Spine - -	15½ "	
Humerus - -	6 "	
Ulna - - -	5 "	
Hand - - -	4 "	
Lower extremity -	15 "	Foot, 4½ inches.
Circumference of chest	19 "	
" waist	16 "	
" pelvis	16 "	
Head - - -	13 "	in circumference.
Antero-posterior diameter	4⅓ "	
Lateral "	3¾ "	
Over top of head, from one auditory passage to the other	8 "	
Ear - - -	1¾ "	
Facial angle - -	65 "	

Teeth, 10 in each jaw, deciduous, normal; all perfectly sound and white.

Third toe short, same length as fourth.

It may not be uninteresting to state that these children were vaccinated, first the boy, and eight days after the girl was vaccinated from her brother. The disease took well, and went through the usual normal stages. About three weeks after the vaccination, both were attacked on the same day with chicken pox, which pursued a perfectly regular course, and was unattended with any strongly-marked constitutional symptoms.

A question naturally arises to an observer first visiting these beings, whether they belong to the human species, and it is only after the eye becomes accustomed to their appearance that the brotherhood is acknowledged.

I will not here enter into a description of their appearance: it is rather agreeable, in a degree intelligent, and with nothing repulsive, as would be expected in the usual abnormal specimens of the human race. They are both quite apt to comprehend what is said to them, particularly if accompanied by appropriate gestures, although any continued conversation evidently could not be understood. They are, in fact, without any language of their own. They seem to acquire words readily, and since their sojourn in Boston, have learned to repeat a number, such as "Papa," "Mamma," "Ellen," "Take care," &c., and evidently are capable of instruction to a limited extent. They are quite imitative, and in this respect nothing escapes them. With regard to any communication by signs or language which they may have with each other, it appears to be at present not much greater than what might be expected from two intelligent individuals of the canine race, although in the expression of their feelings they occasionally make use of an unintelligible jargon of

sounds together, which by some might be interpreted as an attempt at language.

As to their habits, they are those of children of two or three years of age, requiring the care of superiors to feed and clothe them. The propensity to constant feeding may also be considered as remarkable, and although at present under the intelligent management of the person who has them in charge, their diet and regimen have been reduced to a system; yet, if left to their own inclinations, they would undoubtedly keep themselves filled with food. With the exception of a catarrhal affection, which might be expected from their exposure to a cold climate, their health seems good; and their strength, as manifested by an almost incessant movement from morning till night, is not to be complained of.

The most remarkable point of interest in these children is the size of the head, and in this respect, considering the amount of intelligence, they are the smallest which have come under my observation. For the sake of comparison, I propose to give the measurements of some very small heads, those belonging to infants, idiotic children, and also the heads of the quadrumana, who most nearly approximate to man; this method, apparently, being the best adapted to place the present specimens in a striking point of view.

It has already been stated that the heads of these children are about thirteen inches in circumference, and if the hair and scalp be allowed for in the measurement, an inch may be deducted, making them twelve. The antero-posterior diameter is four and one fourth, bi-temporal about four.

The head of an infant at birth was as follows:—

Ant.-post. diameter - - - -	4¾ inches.
Bi-temporal - - - - -	3¾ "
Circumference - - - - -	13¼ "
Over top of head from ear to ear -	8 "
Occipito-frontal - - - - -	8¼ "

A girl four and a half years old—

Circumference - - - - -	20 "
Occipito-frontal - - - - -	13 "
Over head from ear to ear - - -	13 "

A boy nine years old—

Twenty-two inches in circumference.

Head of an idiot child from Spurzheim's collection—

Circumference - - - - -	14 inches.
Ant.-post. diameter - - - -	5 "
Bi-temporal - - - - -	3¾ "
Over top of head - - - -	7½ "

Head of the remarkable dwarf Babet Schreier, of whom a description will be given below, thirteen inches, four lines, measured over the most prominent parts of the forehead and occiput.

Idiot boy, ten years old, with a small head, forty-eight inches high—
Circumference of head, over hair, 15¾ inches.
Young chimpanzee, twenty-six inches high—
Circumference of head, 13 inches.
Head of adult chimpanzee—

Ant.-post. diameter	4½ inches.
Over top of head from ear to ear	8 "
Occipito-frontal	7½ "
Circumference	13 "

Young orang-outang—

Circumference	13 inches.
Ant.-post. diam.	4½ "
Lateral "	3¾ "
Curve over top of head from ear to ear	8 "
Occipito-frontal curve	7½ "

For the further illustration of this point, we will adduce the instance recorded by Pinel, in his "Treatise on Mental Alienation," as exemplifying "that degree of idiocy which is the extreme limit of human degradation, in which even instinct no longer exists." This sketch is accompanied by "a design of the cranium of the female idiot, who was at the Salpêtrière in 1805." She resembled the sheep both in her tastes, her mode of life, and the form of her head. She had an aversion to meat, and ate with avidity both fruit and roots; drinking nothing but water. Her demonstrations of sensibility, of joy and grief, were limited to the words, imperfectly articulated, "Bé," "Matate." She would alternately flex and extend the head, and rub it against the breast of her nurse. If she desired to resist or express her dissatisfaction, she sought to strike with the crown of the head inclined. She was extremely choleric, and many times I saw her in the bath, making efforts to get out, and repeating, in an acute tone, "Bé, bé, bé." The back, loins, and shoulders were covered with flexible black hair from one to two inches in length. She could never be induced to sit in a chair or upon a bench, even to take her food. No sooner was she seated than she slipped down upon the earth, and was accustomed to sleep with her extremities closely gathered about her after the manner of animals. Pinel examined this case, and furnished us with the dimensions of the head of this idiot compared with those of the cranium of a little girl of seven years.

	Idiot of 11 years.	Girl of 7 years.
Length of cranium	5 in. 11	7.08
Breadth	3 " 53	5.11
Depth	5 " 11	6.29

The resemblance these children bear to some of the lower order of animals, especially those of the Simian tribe, is quite remarkable, and we are reminded of Lamarck's theory of the gradual development of the human being from the

lower created orders, and the transformation of quadrumana into the bimana. In regard to their relation to the quadrumana, we observed in the boy an approximation to the frontal crest of the orang; the supra-orbitar ridges, and the parietal and occipital crests of the adult chimpanzee; the projecting jaws, the elongated forearm and its semi-flexed position; finally, the stoop of the whole body, with the air and appearance, forcibly reminds us of the monkey.

It has been thought that, in connection with the description of these children, it will not be found uninteresting to present brief sketches of two or three of the most celebrated dwarfs of whom history furnishes an authentic account, chiefly with a view to display their intellectual development.

Babet Schreier.—This dwarf was six inches in length at birth, and at the age of upwards of seven years, measured only twenty-three. Her weight at birth was a pound and a half; at the age just mentioned, it was eight and a quarter pounds.

"The intellectual functions of this girl are very little developed for one of her age; she has very little more intelligence than a child four years old. Her disposition is good; she is inquisitive, and has considerable power of imitation. If instructed in the principles of education, she would probably learn with ease. She is much more disposed to mirth, and more docile in the afternoon than in the forenoon, and testifies her satisfaction by a more joyful air, and greater pliancy of character.

"Being unaccustomed to fix her attention or to listen to what is said to her, she comprehends with some difficulty, and her judgment, for want of exercise, is slow and perplexed.

"She did not begin to speak until four years of age; but she understands all that is said to her. She actually endeavours to express her ideas, which seem to flow in rapid succession in a kind of German jargon to which she is accustomed, and accompanies her attempts with many gestures. I am convinced, by careful observation, that this little being enjoys the same natural, moral sensibility as any other individual."

We find, in the "*Histoire des Anomalies*" of Saint Hilaire, an historical account of some remarkable dwarfs, and particularly of the celebrated Jeffrey Hudson, Bébé, and Borwilaski.

Jeffrey Hudson was born about the time of Charles I., at Oakham, England; at the age of seven or eight, he was presented in a pie to the queen, his height then being eighteen inches. This stature he retained till about thirty, when he suddenly increased to three feet nine inches. In his character as a courtier and a man, he seems to contradict the inferences of writers of the following ages, that dwarfs "are beings more degraded in the moral than in the physical capacity." For he finally became a captain in the royal army, and after the Restoration returned to England in 1682, where he died at the age of sixty-three years, accused of treason. Perhaps it may not be uninteresting to medical men, in the present state of medical ethics, to find that about 1636 he was sent *to France to procure a midwife for the queen.*

Bebe.—A sketch of Bébé will be found far more interesting in a scientific point of view.—Nicholas Ferry, commonly called Bébé, was born in Novem-

ber, 1741, of parents of the ordinary stature; he was born at the seventh month, after a very remarkable pregnancy; at birth, he measured seven or eight inches, and weighed less than a pound, yet the labour lasted forty-eight hours. It is said that he was carried to church on a plate covered with tow, and a wooden shoe was his cradle. His mouth was too small for the nipple of his mother, and therefore he sucked a goat; he had the small-pox when six months old; at eighteen months he began to speak, but was more than two years before he could walk. At five years of age, he was carefully examined by the physician of the Duchess of Lorraine; he then weighed nine pounds seven ounces (French), and his height was about twenty-two inches, being formed like a young man.

His intellect is represented as feeble; the utmost that could be taught him being to dance and beat time. Of reading, or religion, he had no conception, and after a separation of a fortnight he did not know his mother. He was susceptible of passions, such as desire, anger, and jealousy, and his discourse was without connection, and his ideas confined. At the age of fifteen, he was still lively, gay, and *débonnair;* but puberty wrought a serious change, his health declined, his features lost their smile, and, with every appearance of premature old age, he died June 9th, 1764, at the age of twenty-two and a half.

Skeleton of Bébé.—Ossification perfect.

Cranium greatly depressed between the two parietal and the occipital projections.

Nose projecting.—Nasal bones very large at their lower extremities.

Great toe much elongated.

The principal dimensions of the skeleton were—

Total height		2 feet, 9 inches, 6 lines.	
Length of upper extremities		1 foot, 2 "	9 "
" humerus - -		7 "	3 "
Hand - - - -		3 "	" "
Lower extremity - -	1 "	4 "	6 "
Femur - - - -		9 "	" "
Foot - - - -		4 "	" "

Borwilaski was a Pole, and, like Bébé, of the court. Born at the full time, he was distinguished for his wit and learning. He could read, write, and speak both French and German. The writers of his time call him a perfect but diminutive, and Bébé an imperfect man. When twenty-two years old, Borwilaski was twenty-eight inches high; at this age he was married, and had afterwards several children, well-formed, and of the usual size. The paternity of Borwilaski was not received by all without credulity, even in his own days, and it sometimes gave rise to pleasantries which were supported with courage and patience.

Other dwarfs are mentioned; but I will only refer to the betrothed of Bébé, Theresa Souvray, of about his own age, but with whom his marriage was prevented by death. At the age of seventy-three, she was exhibited in Paris,

appeared chatty and gay, and danced with her sister, two years older, the height of the latter being only three and a half feet.

How far can these children, judging not only from their general size, but also from the smallness of the head, be supposed idiotic? Esquirol, in his "Treatise on Insanity," Am. ed. p. 466, defines the idiotic character at some length, but in a subsequent page does not consider it to depend upon any particular volume or form of the head, notwithstanding it is proper to observe that the smallest heads appertain to the most degraded class of idiots. And again, Gall, in the "Anatomy and Physiology of the Nervous System," has figured two very small crania, and limits intelligence to crania which are only from fourteen to seventeen inches in circumference.

In the report of Dr. Howe, before the Massachusetts State Legislature in 1850, two idiots are compared; the one with the smallest capacity for brain was decidedly more bright, quick, and intelligent than the other. The instance recorded by Pinel has already been given.

From a careful comparison of the observations of different authors with those we have ourselves made and here recorded upon these children, we are disposed to believe that, although of very low mental organization, they cannot be pronounced idiots of the lowest grade. Their senses of sight, hearing, smell, taste, and touch, as well as that of tact, seem complete. Their degree of intelligence has, in our opinion, decidedly improved since their arrival in Boston; and this capacity for education appears far greater than in the lowest idiots.

We need hardly advert to the idea that these singular creatures belong to any peculiar tribe of dwarfs; for it is a fact universally allowed by physiological writers, and expressly laid down by Geoffroy St. Hilaire, that dwarfs are impotent with individuals of ordinary height, and even among themselves, as proved by the experiments made by Catharine de Medicis and the Electress of Brandenburg: "Les plaisirs de l'amour les énervent promptement, et plus souvent leur deviennent funestes. C'est en partie à cette cause que, d'après quelques auteurs, il faut attribuer la vieillesse anticipée, et la mort de Bébé." And in a note he says, "Borwilaski is, at least to my knowledge, the only dwarf who is an exception to this rule. Is an exception in such a matter sufficient to destroy the rule? I can only refer to what has been said above of the paternity of Borwilaski."

[In order to explain some observations in the preceding paper which would otherwise appear obscure, it should be remarked that the children who are the subjects of it were exhibited in Boston as belonging to a race of dwarfs, the descendants of priests from an hitherto undiscovered city in Central America. The peculiar form of their heads, so exactly represented in the Travels of Mr. Stevens, as carved on some of the monuments in that region, and those on some of the Egyptian relics, seemed to favour this idea, as it was supported by a most ingenious and romantic story, descriptive of their discovery and transportation to America. It is now pretty well understood that they belong to some of the mixed tribes of Indians inhabiting Central America, and we hope hereafter to procure some exact details as to the peculiarities of their parents.]

ART. II.— *Case of Gunshot Wound in Left Axilla—Ligature of Left Subclavian, and subsequent Ligatures of Brachial and Subscapular Arteries.* By JOHN WATSON, M. D., Surgeon to the New York Hospital. Reported by WILLIAM H. MORTON, M. D., of Paterson, N. J.

Nov. 25th, 1850. Post Van Pelt, of Paterson, N. J., boy, aged fourteen, of good constitution, was accidentally shot in the left axilla. The shot, to the number of twelve or fifteen, entered the axilla nearly at a right angle with the trunk of the body, and separately made but little external laceration. I first saw the patient three-quarters of an hour after the receipt of injury. There had been profuse arterial hemorrhage, which had ceased spontaneously.

Appearance of patient.—Skin cold, pale, and shrunken; pulse in sound extremity feeble and intermitting, and no perceptible pulse in injured arm.

Treatment.—Cold applications, and an anodyne at night.

26*th.* Patient has passed a comfortable night. Pulse in the sound arm 120; and, if not deceived by the pulsation of my own fingers, I detect a slight pulsation at the wrist of the injured extremity. The whole shoulder, arm, and vicinity of wound are much swollen. Cold dressings continued.

28*th.* Pulse 100; pulsation in the injured arm increasing slightly in regularity and fullness; and the swelling has somewhat subsided. The patient complains of no pain. Continue cold dressings.

29*th.* Much about the same; bowels opened by enema.

Dec. 3d. Patient improving. The swelling has nearly subsided. The wound is suppurating. The pulse on sound side soft, and beats at 110. Circulation in injured extremity becoming more regular each day. The patient complains of pain in hand and forearm. Ordered poultice of linseed meal to wound.

4*th.* Having left patient's house but a few steps, I was called back, and found considerable arterial hemorrhage, which was controlled at once by pressure over the subclavian artery. During the next thirty-six hours, the hemorrhage recurred five or six times, some four or five pints of blood being lost; which hemorrhages always yielded to compression on subclavian artery. Cold dressings ordered to be reapplied.

5*th.* Pulse on the sound arm 120, and hard; and faint pulsation in the injured arm. I noticed a small tumor forming in axilla of injured side, which proved to be a false aneurism. Tumor increasing rapidly; by night being as large as a goose's egg. On consultation, it was decided to ligature the subclavian artery.

6*th.* Having requested the aid of Dr. Watson, he proceeded to ligature the subclavian artery beyond the scaleni, while the patient was under the influence of ether. At this time the pulse at the wrist was imperceptible, but the aneurismal swelling in the axilla beat strongly. The steps of the

operation need not be detailed further than to say that, before securing the subclavian, the external jugular vein, and a small ascending vessel, probably a branch from the acromial artery, required the application of a ligature; and that very little blood was lost.

I visited the patient four hours after the operation, and found the aneurismal tumor and the swelling in the arm sensibly diminished, and no pulsation to be perceived. Pulse in sound arm 120. Patient in good spirits.

8*th*. Aneurismal tumor burst and discharged a quantity of coagula and semi-fluid blood.

9*th*. Removed the outer dressings from wound made in operation. There was some discharge of grumous blood from this, and no indication of union. Pulse about 130, and hard, with a jerking feel; bowels moved by enema.

12*th*. Patient again improving; pulse better; respiration good; and less excitement about the vessels of the neck. There was a venous hemorrhage to-day from the incision above the clavicle, which ceased spontaneously, and did not return.

15*th*. Again removed dressings; wound looks healthy. The ligatures on the superficial vessels, and the main ligature, remain firm. Pulse 110, and softer.

18*th*. Both wounds suppurating finely. Strong hopes of patient. Four hours after my first visit a profuse hemorrhage occurred. The flow having ceased, its point of issue could not be ascertained, nor could I decide as to whether it was venous or arterial.

19*th*. The hemorrhage again occurred; it was now clearly arterial, and from the original seat of injury in the axilla; it ceased spontaneously. Pulse 120, and jerking.

20*th*. Dr. Watson, being summoned from New York, arrived just in time to witness a third recurrence of the arterial hemorrhage, which was tremendous. Not being able to control it by pressure, and the case admitting no delay for the administration of ether, he made an incision two and a half inches in length below the clavicle in the course of the subclavian artery, and through the pectoral muscles into cavity made by injury in axilla. The seat of hemorrhage not being readily discovered, the cavity was stuffed with pieces of sponge, and an incision about three inches long made in arm over brachial artery, which was found open, but flaccid and dry. It was then tied. The sponges were next carefully removed piece by piece, and we discovered that the repeated hemorrhages *subsequent* to the ligature of the subclavian were not from the lacerated brachial artery on the distal side, but from the channel of communication between the posterior scapular and subscapular arteries, which latter, with its accompanying nerve, lay gaping and much enlarged at the bottom of the cavity. The subscapular artery, which was still bleeding, was finally secured. The axillary artery was found to have been much disorganized by the original injury. A number of shot, lying loose, were scraped out with the other contents of cavity, which now remained dry.

Patient lost by this last hemorrhage nearly two quarts of blood without inducing syncope. After the operation, bandages were placed on the lower extremities, and stimulants administered with the view of supporting the circulation and inducing a vigorous reaction.

21*st*. Patient gradually sinking. Stimulants freely and frequently administered.

22*d*. Patient died this morning, having never rallied from last profuse bleeding. Previous to death, the arm showed symptoms of gangrene.

Autopsy.—The post-mortem examination was confined, by request of the friends of the patient, to the incision above the clavicle. The ligature on the subclavian artery was found loose, and the vessel obliterated some distance each way. (The superficial ligatures had come away previously on the 20th.) Union had taken place to a large extent at the seat of the operation, although there was a sinus along the course of the artery, terminating at the original seat of injury in axilla. Arm extensively gangrenous.

Remarks.—This case presents analogous features to one of Dr. Mott's, with the exception of the difficulties arising subsequent to the ligature of the subclavian artery—difficulties caused by the enormous sloughing process in the original wound. We would not have been justified in enlarging the wound, and tying both ends of the injured axillary artery, and the result of the case shows that such a procedure would have been of no service. The diagnosis was at first difficult, both as to vessel and extent to which the vessel was injured. Certainly the indications pointed out the axillary artery; but might not the injury of a minor vessel, with the profuse hemorrhage and shock to system, have produced the same symptoms? Again, hemorrhage had ceased upon my seeing patient, and pulse returned in a few hours (but feebly and intermittingly, indeed). And would ligatures upon both ends of bleeding vessel have prevented the terrible disorganization of the parts?

It will be perceived that the secondary hemorrhage prior to the operation took place on the 4th of December, eight days after the receipt of injury; and one day intervened between the first hemorrhage and the ligature of the subclavian. This delay was unavoidable. It will also be remarked that, during all these repeated bleedings, even up to the last operation, the pulse varied but little; and patient's strength, courage, and spirits remained good. Both operations were performed under great deficiency of light, so much so that the last required the aid of a candle. The venous hemorrhage, mentioned as occurring on the 12th, probably arose from the divided end of the external jugular, from loosening of the ligature.

Guthrie says that, "when there is a wounded artery which has been duly secured above and below the wound, or when there is an artery in a state from which it may be feared blood may flow, from any or whatsoever cause, the patient should never be allowed to stir from the recumbent position until the external wound has healed;" a precept which was most reli-

giously observed in this case. The last hemorrhages were brought on by the slight exertions made in micturating.

The "operation" on the subclavian ought to be considered successful, so far as that vessel was concerned, the patient being carried off by causes not altogether unforeseen, but unavoidable and totally unconnected with the ligaturing of the vessel. Dr. Watson says, "he regrets we did not resort to transfusion of blood immediately after checking the flow at the last operation." It certainly was worthy of trial, but I have some doubts as to the benefits that would have been derived from it; for the circulation having been but feeble in the injured arm from the day of the injury, and that circulation being still further diminished by last operation, leaving only the small acromial and the capillary circulation for the nourishment of the arm, gangrene was to be expected, and it did make its appearance; to check which, had the patient survived, would probably have required amputation at the shoudler-joint.

ART. III.—*Observations on the Dumb-Bell Urinary Deposit.* By JOHN BACON, Jr., M. D. (Read before the Boston Society for Medical Observation, December 16th, 1850.)

THE remarkable crystalline bodies, first described by Dr. Golding Bird, in 1842, under the name of *dumb-bells* (see *Guy's Hospital Reports*, vol. vii.), are among the rarer forms of urinary deposit. Their nature has never been satisfactorily determined. They always occur alternately with the octohedra of oxalate of lime, or mixed with them; and were regarded by Dr. Bird as zeolitic crystals of that salt. The term *zeolitic* is derived from the zeolites, a family of minerals which frequently form compact spherical masses made up of radiating acicular crystals. In the *American Journal of the Medical Sciences*, for July, 1850, is an article on the dumb-bells, by Dr. Frick, of Baltimore, in which he endeavours to prove that they consist of uric acid. The question as to their chemical composition is not only one of scientific interest, but of practical importance in its bearing on the treatment of oxaluria, an affection which is probably much more frequent than is generally supposed. A fine specimen of the deposit, for which I am indebted to Dr. Dalton, of Boston, has enabled me to make a microscopic examination, and a partial analysis.

In this specimen, the dumb-bells are mixed with octohedral crystals of oxalate of lime, generally very small, and some epithelium cells. They were prepared for examination by allowing the urine containing them to stand an hour or two, as the deposit subsides slowly; and after pouring off nearly the whole

fluid, adding distilled water to the remainder. After another interval of repose, this process was repeated; first with water, and subsequently with dilute alcohol, in which the deposit falls more readily, until the last portions left no stain when evaporated on a slip of glass. Both the dumb-bells and octohedra are insoluble in water and in alcohol.

I. *Microscopic Characters of the Dumb-bells.*—The microscope employed is a very excellent one, made by Charles A. Spencer, of Canastota, N. Y. I have since repeated the observations on mounted specimens, with a first-class microscope recently made by Nachet, of Paris, with the same results.

The dumb-bells, mounted dry, and examined by reflected light, are yellowish-white and semi-transparent, with a pearly lustre. The surface is slightly roughened by minute tubercular projections. In Canada balsam or in water, they appear by transmitted light nearly transparent and free from colour, excepting a yellow tinge. The general form is that of a dumb-bell. Many specimens have the shape of two kidneys with their concave surfaces opposed and connected by a short band. This form passes into that of a nearly circular body composed of two semicircles, nearly or quite in contact, but united only by a narrow neck. Every intermediate form between this and the dumb-bell can be found. There are also nearly circular bodies made up of four quadrants, united at the centre.

The striæ described by Dr. Bird are readily seen. They radiate in two general and opposite directions from a central point in the neck of the dumb-bell, and run without interruption to the surface of the heads, which is slightly tuberculated, but shows no projecting crystalline points. The striæ are composed of exceedingly fine and close lines, and become more and more curved, as they are farther from the axis of the dumb-bell. Besides the striæ, there are faint concentric bands parallel to the outline of the heads, and generally at right angles to the striæ. These are marked by lighter and darker shades of colouring, and are most distinct near the exterior. Usually four or five are visible; sometimes as many as eight. They are present in the small specimens, as well as the large, and can sometimes be traced nearly to the neck of the dumb-bell. In the nearly circular bodies, they have the same characters. They probably indicate successive deposits, or interruptions in the process of formation, like the concentric layers in calculi, which often exhibit a radiated structure also. The striated portion of the neck is generally surrounded by a more transparent substance, showing no structure, which fills up more or less of the interval between the heads. Specimens examined in the urine itself had the same characters.

The above is the appearance of the dumb-bells in their usual position. In thick and fluid Canada balsam, they can be rolled over and examined in different positions. In a side view, the general outline is oval, the very transparent substance nearly or quite filling the space between the heads, which are considerably narrower than when seen in front. The striated portion pre-

sents the figure of an hour-glass, the striæ diverging from a central point within the transparent envelop. The concentric bands present the same appearance as in a front view. The heads are not spherical, but considerably flattened, and the end view of the dumb-bells is oval, but they cannot be retained in this position long enough to be clearly seen. Some of the specimens mounted in solid Canada balsam show an oval figure, with striæ diverging in every direction from the centre, and are probably dumb-bells seen endwise. The nearly circular bodies appear as spheroids more or less flattened, in a side view.

II. *Size of the Dumb-bells and Octohedra.*—The dumb-bells in this specimen are considerably larger than those measured by Dr. Bird. In the following table, are given his measurements, in fractions of an English inch (taken from his work on "Urinary Deposits"), for comparison with mine. The first column of figures is Dr. Bird's, and the second my own measurements.

Long diameter of large dumb-bells,	$\frac{1}{563}$	$\frac{1}{423}$
Short diameter of ditto,	$\frac{1}{750}$	$\frac{1}{635}$
Diameter of some nearly circular bodies,	$\frac{1}{300}$	$\frac{1}{312}$
Long diameter of smallest dumb-bells,	$\frac{1}{1420}$	$\frac{1}{940}$
Short diameter of ditto,	$\frac{1}{2500}$	$\frac{1}{1587}$
Length of a side of largest octohedra,	$\frac{1}{750}$	$\frac{1}{379}$
" " smallest octohedra,	$\frac{1}{5600}$	$\frac{1}{7700}$

There are very few large octohedral crystals in this specimen; their average size is about $\frac{1}{1000}$th of an inch. My measurements were made with both an English and a French micrometer, which agreed very nearly.

III. *Action of the Dumb-bells on Polarized Light.*—Examined by the polarizing attachment of a Chevallier microscope (consisting of two Nicol's prisms), the dumb-bells appear brilliantly illuminated on the dark field, exerting a powerful action on the polarized light. The heads exhibit concentric coloured bands traversed by a dark cross, an appearance commonly presented by groups of radiating acicular crystals. These coloured bands are most distinct near the exterior, and do not appear to coincide with the structural bands seen in ordinary light. The transparent substance investing the neck polarizes feebly. In the side view, an oval coloured band is seen near the outside of the dumb-bell, and the hour-glass striated portion is distinctly visible within its transparent envelop. The oval bodies which I suppose to be dumb-bells, seen endwise, show one or two nearly circular coloured rings near the centre, and an oval band near the outside. The nearly circular bodies exhibit concentric coloured bands within each segment, and are traversed like the dumb-bells by a dark cross. When the field is made bright by revolving one of the Nicol's prisms 90°, the cross becomes white, and the coloured bands are faintly visible, their colours being complementary to those exhibited on a dark ground.

The accompanying octohedral crystals are nearly invisible on the dark field, exerting little or no action on polarized light.

IV. *Chemical Reactions of the Dumb-bells.*—The dumb-bells were submitted to the microscope without separation from the accompanying octohedra and epithelium cells. For the micro-chemical examination, they were freed from them as far as possible by diffusing the deposit in water in a watch-glass. A rotatory motion being given, the water was poured off as soon as the dumb-bells had settled to the bottom. Being larger and apparently heavier, they subside more quickly than the rest of the deposit. The few remaining octohedra were nearly all picked out under the microscope.

Experiment 1.—The dumb-bells, heated over a spirit lamp, on a slip of the thin glass used for covering microscopic objects, darken and finally become white again at a low red heat. Under the microscope, they are now opaque, but preserve their shape perfectly. The residue is insoluble in water, as before heating. In dilute acetic acid, it dissolves with effervescence. The solution, supersaturated by ammonia, gives no precipitate. Solution of oxalate of ammonia being added, a white granular precipitate falls, and, after some time, small octohedral crystals appear in the solution.

Experiment 2.—Heated before the blowpipe, on a strip of platinum foil, the dumb-bells become opaque and retain their shape without sign of fusion, even at a full white heat. A pointed slip of reddened litmus paper being moistened and brought in contact with a little heap of the ignited dumb-bells, its blue colour is restored at the tip. Dilute acetic acid dissolves the residue without effervescence. The solution gives with oxalate of ammonia a white precipitate composed of very minute octohedra.

Experiment 3.—Dilute acetic acid does not dissolve the dumb-bells. In tolerably strong acetic acid (containing 39 per cent. of glacial acid), they become very pale and transparent, the transparency commencing at the surface, and slowly penetrating to the centre of the heads. The striæ and concentric bands all disappear, and a transparent substance is left, which retains the form of the dumb-bell for a while. In half an hour, complete solution is effected. The solution, left to spontaneous evaporation, deposits an abundance of zeolitic forms. They are mostly circular, and are generally composed of two semicircular bodies united by a narrow neck. Every intermediate form exists between this and the dumb-bell, of which there are many small specimens. All these bodies exhibit fine radiating striæ, but none of the concentric layers present in the original dumb-bells; nor have they the transparent substance investing the neck. There are some small oblong bodies composed of two oval zeolitic forms united by a transparent substance; sometimes four of these ovals are connected in the shape of a cross. In polarized light, all these bodies exhibit the coloured rings and dark cross more distinctly than the original dumb-bells, forming splendid objects for the polarizing microscope. Mixed with the zeolitic forms, are a few groups of long four-sided prisms,

which polarize rather strongly. The result of this experiment is in perfect agreement with Dr. Bird's supposition, that the dumb-bells are zeolitic groups of crystals.

Experiment 4.—In dilute hydrochloric acid, the dumb-bells dissolve slowly and completely. The solution, on spontaneous evaporation, leaves groups of thin rhomboidal plates, very transparent, and polarizing powerfully. The rhomboids are often very long and arranged in stellate groups. These crystals are permanent in the air, and retain their transparency when thoroughly dried by a moderate heat. At a temperature above 200° F., they become opaque and white. In water, they instantly become opaque, retaining their form more or less completely. The water reddens litmus paper; and when heated in a concavity in a glass slide, covered by a slip of glass moistened with a solution of nitrate of silver, a white cloud appears in the silver solution, which is insoluble in nitric acid, but instantly disappears on adding an excess of ammonia. This reaction proves that the rhomboids contain hydrochloric acid in combination. They are readily soluble in acetic or hydrochloric acid.

Experiment 5.—In strong hydrochloric acid, the dumb-bells dissolve readily. By spontaneous evaporation, many transparent rhomboidal tables, often in groups, are deposited; resembling those from dilute hydrochloric acid, and polarizing powerfully. There are also a few octohedra, which do not act on polarized light; and some small zeolitic bodies. These are mostly circular, and have the same characters as those deposited from the solution in acetic acid.

Experiment 6.—The dumb-bells, placed in a cold saturated solution of carbonate of soda (covered to prevent evaporation), gradually become opaque, and in a few hours disintegrated, while a white granular precipitate forms around them. The clear solution being poured off, and the precipitate washed with distilled water, to remove the remaining carbonate of soda, it dissolves with effervescence in dilute acetic acid, leaving a few partially decomposed dumb-bells. The acetic solution, neutralized by aqua ammoniæ, yields a white granular precipitate with oxalate of ammonia, proving the precipitate from the carbonate of soda solution to be carbonate of lime.

Experiment 7.—The carbonate of soda solution (Exp. 6) should contain the acid of the dumb-bells in combination with soda. Left to spontaneous evaporation, it affords small stellate and foliaceous groups of crystals, mixed with large isolated crystals of carbonate of soda. The whole deposit re-dissolves in water. Neutralized by nitric acid, the solution gives with nitrate of silver a white precipitate, soluble in ammonia and in nitric acid. This precipitate fails to give the characteristic reaction of oxalate of silver, which should fulminate faintly and be dispersed, when suddenly heated after thorough drying; but its quantity is too minute to render the trial satisfactory.

The small amount of the deposit in my possession was now exhausted. Experiments 1 and 2 prove that the dumb-bells consist of a salt of lime, convertible by a moderate heat into the carbonate, and of course by a high

heat into caustic lime. The other reactions indicate that the lime is combined either with oxalic acid, or an organic acid nearly related to it. Octohedra, and prisms which appear to be oxalate of lime, are obtained from the hydrochloric and acetic solutions. The manner in which the dumb-bells are first penetrated, and then dissolved by strong acetic acid (Experiment 3), suggests the idea that they may contain organic matter, either as a constituent of the compound (from which it is set free by acetic acid), or mechanically intermixed with the acicular crystals which make up the zeolitic group. The acid appeared to dissolve out the salt of lime, leaving an amorphous substance of great tenuity, and less readily attacked by it. The solution did not dry up completely when the zeolitic bodies were deposited, but remained viscid after being kept for twelve hours in a closed vessel with caustic lime. Groups of acicular crystals are very liable to retain some of the substances among which they are formed, and especially in crystallizing from the urine. I have obtained tufts of acicular crystals of phosphate of lime from urine, which, after careful washing, retained organic matter enough to blacken and evolve a strong odour when heated before the blowpipe. The quantity of the dumb-bells which I exposed to heat was very small, and no odour was perceived, nor any greater blackening than is usual with pure oxalate of lime. Some of the reactions obtained are not known as belonging to oxalate of lime, and I proceeded to make some comparative micro-chemical experiments with that substance.

V. *Chemical Reactions of Oxalate of Lime.*—Pure oxalate of lime was prepared by adding oxalate of ammonia to a solution of chloride of calcium, and washing the precipitate thoroughly.

Experiment 8.—Oxalate of lime dissolves in very small proportion in dilute acetic acid, which leaves on evaporation a minute granular deposit. In acetic acid containing thirty per cent. of glacial acid, it is more soluble, a few circular zeolitic bodies appearing on evaporation. Acid of thirty-nine per cent. slowly dissolves a considerable amount, and when evaporated rapidly by a moderate heat, leaves circular zeolitic bodies, showing the radiating striæ finely, and giving the characteristic coloured rings and dark cross in polarized light. The circles are generally fissured in a radial direction in one or two places, as if they had contained water or acid when formed, and had contracted on drying. They sometimes show two or three concentric layers, proving that these may be formed in a short time, even in a few minutes. The octohedral crystals of oxalate of lime which accompany the dumb-bells in the urinary deposit are slowly dissolved by strong acetic acid.

Experiment 9.—A solution of oxalate of lime in strong hydrochloric acid, evaporated rapidly, leaves an abundance of zeolitic forms like those from the acetic acid solution. By spontaneous evaporation it yields transparent rhomboidal plates, often in groups; small octohedra and four-sided prisms, which last are sometimes in rosettes, and numerous zeolitic forms. The rhomboids

and zeolitic groups polarize finely, the prisms less strongly, and the octohedra not at all. In water the prisms and octohedra, as well as the zeolitic bodies, remain unaltered. The rhomboidal crystals retain their transparency when thoroughly dried, but become white and opaque on exposure to a considerable heat. They are not deliquescent, as would be the case if any chloride of calcium were formed. In water they instantly become opaque and granular, but do not dissolve. Their angles become rounded, and minute octohedra gradually appear in the water around them. In nitric acid they dissolve readily, and nitrate of silver produces a white flocculent precipitate of chloride in the solution, proving that these crystals contain hydrochloric acid combined with oxalate of lime, the combination being so feeble that the addition of water is sufficient to break it up. The prisms and octohedra appear to be pure oxalate of lime. A solution of oxalate of lime in dilute hydrochloric acid leaves, on spontaneous evaporation, rhomboidal plates, octohedra, and prisms, but no zeolitic forms.

Experiment 10.—Pulverized oxalate of lime being added to a saturated solution of carbonate of soda, and allowed to stand four hours in the cold, the deposit, which had become semi-transparent and crystalline, was separated by a filter from the solution, and washed. Dilute acetic acid now dissolves more than one-half of it with active effervescence, the residue being undecomposed oxalate of lime. The filtered carbonate of soda solution, neutralized by nitric acid, gives with nitrate of silver an abundant white precipitate, readily soluble in nitric acid and in aqua ammoniæ. This precipitate, collected and dried, is dispersed with a faint report and a puff of smoke when suddenly heated on platinum foil. This is a characteristic reaction of oxalate of silver, and proves that a solution of carbonate of soda is able to decompose oxalate of lime without the aid of heat, giving rise to insoluble carbonate of lime and soluble oxalate of soda.

These experiments show that oxalate of lime, contrary to the usual statement, is soluble in strong acetic acid, and that it forms a crystalline compound with hydrochloric acid. When rapidly deposited from solution, it affords zeolitic forms similar to those obtained from the dumb-bells. By the slow evaporation of a strong solution, zeolitic groups mixed with crystals are deposited. A dilute solution, slowly evaporated, yields crystals only. These crystals resemble in appearance and in their reactions those obtained from the dumb-bells.

It is probable that many substances may assume the zeolitic form of crystallization, and even the dumb-bell variety of that form. Griffith, in his "Manual on the Blood and Urine," figures dumb-bells of oxalate of soda (Plate IV, Fig. 17), also imperfect dumb-bells of uric acid (Plate I, Fig. 12). I have similar forms of phosphate of lime from stale urine, of urate of magnesia and oxalurate of ammonia, which are evidently made up of radiating acicular crystals. The mere external shape is not to be regarded as charac-

teristic, unless the zeolitic structure is present also. Dr. Frick obtained forms similar to the dumb-bells by keeping rhomboidal crystals of uric acid in water for some time, but it does not appear that they acquired the radiated structure, or the polarizing action of the true dumb-bells. The well-known radiated spherical masses of carbonate of lime from the urine of the horse give the zeolitic rings and cross in polarized light. Phosphate of lime, dissolved in strong hydrochloric acid, affords, both by rapid and slow evaporation, circular zeolitic forms, having the characteristic structure and polarizing action. No isolated crystals are obtained from the hydrochloric solution of this salt. The typical zeolitic form is a spherical mass. Under what conditions the peculiar dumb-bell shape is assumed has not been ascertained. The concentric layers which I observed may not be present in all cases.

Since the preceding observations were made, I have seen, in the *London Medical Gazette* of Oct. 25th, 1850, a reply by Dr. Bird to Dr. Frick's article. In this paper, Dr. Bird gives the results of a few recent experiments on dumb-bells obtained from a patient whose urine deposited a large quantity of them, unmixed with other crystals. These experiments, in his opinion, render it probable that they consist of oxalurate of lime, a salt easily convertible into the oxalate; from which it differs only by containing the elements of urea in place of those of water. The following is an abstract of his reasons for this belief: 1st. In their peculiar action on polarized light, and their radiated structure, they present a close resemblance to the crystals of oxalurate of ammonia, while the octohedra of oxalate of lime have no polarizing power. 2d. Water in which dumb-bells were kept for ten days at a temperature which, in the day-time, seldom fell below 85° or 90° (Exp. B.), became turbid, and evolved a fetid ammoniacal odour. Some of the dumb-bells had disappeared, and large octohedra of oxalate of lime, which did not exist previously, were visible. This putrefactive change, with evolution of ammonia, indicates the presence of nitrogen. 3d. The dumb-bells became black, and evolved an odour of burnt horn, when heated in a platinum spoon (Exp. D.), and at a moderate red heat became white. 4th. A solution of the dumb-bells in dilute hydrochloric acid was treated by ammonia (Exp. C.), which produced an amorphous white precipitate. On leaving the whole to spontaneous evaporation, large cubes of sal-ammoniac were obtained, and none of the usual plumose crystals. The cubic form is that assumed by this salt in the presence of urea. 5th. Boiled in strong nitric acid (Exp. F.), the dumb-bells dissolved, and on spontaneous evaporation, large and perfect dumb-bells were deposited from the solution.

In regard to Dr. Bird's argument from the crystalline form, and polarizing action of the dumb-bells, I have shown that oxalate of lime and other salts can be obtained in various zeolitic forms, of which the dumb-bell is one variety. Though the octohedra of oxalate of lime do not act on polarized light, the prismatic crystals of this salt which abound in various plants possess strong

polarizing power. These crystals (known to the botanist under the name of *raphides*) are classed under three general forms, specimens of each of which I have examined in this connection: 1st. Isolated four-sided prisms, usually and perhaps always rhomboidal; 2d, stellate groups of prisms; 3d, acicular crystals, either isolated or in bunches. Isolated prisms from the bark of common hickory, of two species of oak, and of the grape-vine, become strongly coloured in polarized light, and in some positions show concentric coloured bands parallel to the edges of the crystal. Similar crystals occur in the cells of the outer coats of the onion. In a single specimen, I found mixed with the prisms groups of radiated acicular crystals and true zeolitic forms, which gave the characteristic coloured rings and dark cross in polarized light. Whether these bodies consist of oxalate of lime or some other salt, I am unable to say. They have a yellowish colour and show radiating lines distinctly, by which they are readily distinguished from starch granules, which also exhibit a dark cross in polarized light. The stellate groups or rosettes which abound in rhubarb root polarize finely, the projecting faces of the crystals showing coloured bands parallel to the edges. In the pulp of the fig, similar groups of crystals occur, which have the same characters. Acicular raphides from the pith of the grape-vine, and those found in the outer coats of the hyacinth bulb, also in the stem and roots, show fine colours in polarized light. They appear to be very long and slender four-sided prisms. The prismatic crystals obtained by evaporating a solution of the dumb-bells or of oxalate of lime in acids, agree in appearance and polarizing action with those from plants. Octohedra of oxalate of lime sometimes occur in plants. I regard the dumb-bells as made up of very slender prisms, and not of lengthened octohedra, as Dr. Bird supposed.

Dr. Bird's experiments B. and D. indicate the presence of organic matter containing nitrogen, but do not show whether it forms a chemical constituent of the salt of lime, or is mechanically mixed with it. The resolution of the dumb-bells into octohedra of oxalate of lime, observed in Exp. B., may be a re-crystallization of the salt, with separation of the organic matter, or the acid may be decomposed. In Bowman's "Medical Chemistry," it is stated that the dumb-bells are gradually converted into octohedra, if kept for a length of time in any liquid medium. In my fifth experiment, octohedra were deposited from the hydrochloric solution of the dumb-bells. Exp. C. favours Dr. Bird's opinion that the elements of urea are present, but it cannot be regarded as conclusive. It is yet unknown whether sal-ammoniac may not assume the cubic form in presence of other organic substances besides urea. I repeated this experiment with some dumb-bells which had been mounted dry for preservation, and obtained plumose crystals of sal-ammoniac, and no cubes. It is possible that these dumb-bells might have undergone some alteration, as they were exposed to a heat of 200° or more in mounting, and had been kept some time since; but they retained their transparency and other characters.

A dilute solution of oxalurate of ammonia, added to one of chloride of cal-

cium, produces no immediate precipitate, but after some hours numerous zeolitic forms, probably of oxalurate of lime, are deposited. Among them are small dumb-bells, with radiating striæ, but the majority are circular. A part of the solution, left to spontaneous evaporation, deposited large cubes of sal-ammoniac mixed with zeolitic groups. The oxalurate of ammonia employed was not pure, and the zeolitic bodies are coloured, and more or less opaque, but some of them give the characteristic phenomena in polarized light. They are too impure and too small in amount for a satisfactory comparison of their reactions with those of the dumb-bells. Pure oxalurate of lime is stated to form brilliant and colourless crystals, sparingly soluble in water. The dumb-bells from urine are not attacked by water, unless macerated in it for a long time.

Dr. Bird concludes, from Exp. F., that the dumb-bells are not decomposed by boiling in strong nitric acid; but they might give this result if they consisted of oxalate of lime, or were converted into that salt by the nitric acid. A solution of oxalate of lime in strong nitric acid affords fine zeolitic forms by rapid evaporation. If these are re-dissolved in strong acid, and the solution boiled and evaporated, they are again deposited with the same characters. The residue is not deliquescent, as would be the case if any nitrate of lime were formed.

The preceding observations prove that the dumb-bells consist of a salt of lime, containing either oxalic, oxaluric, or perhaps some other organic acid easily converted into the oxalic; but the exact nature of the acid remains to be determined by future investigation.

ART. IV.—*On some of the Remote Effects of Injuries of Nerves.* By CHARLES W. PARSONS, M. D.* [Read before the Rhode Island Medical Society, Providence, December 18th, 1850.]

A SOMEWHAT peculiar case, which fell under my notice during the present year, first led me to make inquiries into similar facts; and I will begin by relating it in detail, and afterwards give an account of other cases which seem to be allied to it. No apology can be required for minuteness in the report of a case. Every one of you probably has been disappointed by finding that only those parts of a medical observation were recorded which the writer's own theoretical views made important, to the neglect of points which would be most essential in answering a hundred different questions that would first occur to other minds.

* The writer would be very sorry to have it thought that he offers this article as a complete essay on the subject. The hasty notice of many topics, and some peculiarities in its style, may be excused by the fact that it was intended to be read before a Society, and is published only in accordance with a special vote requesting it.

A young woman employed in a factory, aged 17, large for her age, of nervous temperament, had been rather delicate in health. She had convulsive attacks in childhood; and no serious sickness since. The catamenia were never regularly established till two or three months before the following narrative begins.

On Sunday evening, February 17th, 1850, she thrust the point of a pair of scissors into the left thumb, on the radial side, just over the root of the first bone of the thumb. The wound was slight, and caused little bleeding, but severe pain. She nearly fainted away. Some *salve* was applied, and the wound healed in a few days, but some pain and swelling remained about the thumb. She used cold emollient poultices, till on Saturday morning, the 23d, she put on warm fomentations of wild indigo, at the recommendation of an old woman. That day she had for the first time pain and swelling up the arm. About this time she had some pain in the back of the head and neck. She could not raise the thumb; it lay bent over into the palm of the hand. About March 1st, her catamenia appeared, and she was attacked, a few days after, with a "nervous fever." During this sickness, she was first visited by one of our Fellows, Dr. J. N. Millar, of Fruit-hill. The catamenia lasted only two or three days; during the fever she had headache, but did not complain of any pain in the spine, and had no convulsions; her pulse was exceedingly rapid; she slept well at night. The thumb was swollen and painful about its root; she gained in the power of moving it; there was no open wound. In about two weeks she was convalescent from the fever.

Just as her appetite became restored, she one day saw her mother sit down on a basin of water which was in a chair, and she burst out laughing. The laughing became uncontrollable, and during the day gradually changed to a dry barking cough. This cough continued more or less constant for several weeks. She slept a good deal on some nights, and went through some days in comparative quiet; but at times she had very severe attacks, more severe than hard paroxysms of hooping-cough. After about two weeks, she coughed up green and yellow mucus, and sometimes blood. The thorax and spine became tender to pressure.

I saw her with Dr. Millar, March 31st, and will give my notes of that date. She was able to sit up in bed about half an hour, was cheerful, cheeks flushed, not at all livid. Slept well, last night, under large doses of hyoscyamus. Her cough, while I was there, was almost incessant. One inspiration was followed by from two to seven dry jerking expiratory sounds, reminding one a little of a small dog or frog. Respiratory sounds vesicular, clear and pure, on a hasty examination over the back. Percussion resonant. Respirations 20, pulse 100 in the minute. During the quiet produced by chloroform, the pulse went down to 80. Tongue red, clean, rough. Appetite at times pretty good. Bowels regular. Catamenia have gone through their regular course once since the fever.

Cicatrix on thumb red, a little prominent, like a half pea, very sensitive.

She cries out when I press its centre. Tenderness extends round the thenar eminence; and over metacarpal bone to the wrist. No tenderness, pain, nor red or hard lines up the arm. She cannot abduct the thumb.

Treatment had been very various. Opiates in very large doses had not much effect. Cupping over cervical and upper dorsal vertebræ allayed the cough for a time, but lost its effect by repetition. Inhalations of ether and chloroform stopped the cough while insensibility lasted, and no longer. Carbonate of iron, oxide of zinc, slight mercurialization had no marked effect. A dose of turpentine with castor oil was followed by unusual quiet for a time; a second dose had no obvious effect.

We gave her chloroform; after inhaling about ʒij, she became insensible and still. The cicatrix was then thoroughly cut out, and emollient poultices were applied. Next day she had pain running up to the spine; she had had a quiet night, using large doses of hyoscyamus. This operation had no immediate effect on the cough.

Four weeks after, April 28th, her cough had been growing less incessant and violent; she could converse some, though frequently interrupted; she raised thin serous sputa, bloody mucus, and almost every day some blood. Tenderness of thorax continued. The wound of the operation had healed soon; the cicatrix was not tender, and projected very little. She had used opiates more freely, and become costive; but her appetite was still good.

In a few weeks after this, after using quinine pretty freely, she felt able to leave her chamber, and rapidly improved after changing air. I saw her June 1st; she was able to walk out to the neighbors'; in ten minutes' conversation, she had about six turns of the noisy expiration; they are more frequent after fatigue or mental excitement. She continued to improve, with no marked advantage from treatment, except from change of air and scene and mode of living.

Some time in October, a relapse occurred, of which I cannot give the early history. She had, as before, very severe turns of noisy cough, with scanty mucous and bloody sputa. This lasted three or four weeks. The manner in which it ended is worth noticing; as it looks as if nature attempted a cure by a process resembling that which has sometimes succeeded in the hands of surgeons.

At a time when she had a very severe spasmodic cough, she noticed a soreness in the cicatrix on her thumb; a blister soon rose there, the tenderness and inflammation extended, and soon a dry slough formed, including the original scar. This became black and hard, and peeled out as in some cases of senile gangrene, with no liquid discharge beneath. When this soreness began to attract her notice, her cough was mending a little; but soon after, as the slough separated itself, her cough ceased, and has not troubled her since. She gained rapidly in health. Two days since she had gone to work in the factory, and had nearly gained her usual strength. The thumb pre-

sented a cicatrix, flat, a little red, say an inch long and half an inch wide, with a slightly tender knob at one corner. No tenderness running up the arm. She cannot abduct the thumb; all its other movements are perfect. The hand is colder than the other one.

It is, I think, quite clear that this cough did not proceed from inflammation of the air-passages, and that the discharge of different liquids from the mucous membranes was a secondary result of the convulsions. The cough, as I heard it, was evidently spasmodic, and answered to the description given of *uterine*, or hysterical cough. Sir Charles Bell has described very similar cases, in one of which several physicians spoke for a chance to examine the ulcerations of the larynx after death, but the patient disappointed them by getting well. In another, he was called on to perform laryngotomy. In one nervous young lady, his description is, "a convulsive barking noise like a cough, except that the larynx was alone affected; and there was no conforming action in the pharynx, velum, and lips."

Again, it seems certain that the wound had some agency in causing the symptoms, by an impression of some kind sent up the nerves of the arm. The part wounded certainly contained terminal nervous fibres, which could send an impression to the brain, though unfortunately I cannot say whether any nervous trunk was injured. A branch of the radial nerve was just in the way of the scissors; and we may infer that it was injured, from the immediate pain and subsequent paralysis.

A variety of remarkable symptoms have been found to be produced by injuries of nerves. There is no need of illustrating the effects on those parts to which the injured nerves run. As an ordinary thing, any lesion of a nervous trunk is felt in the parts supplied by it. But the *remote* effects, those which run *up* the course of the nerve, or radiate in *collateral* directions, are less familiar. They consist in disorders of sensation and disorders of motion.

Pain is the most frequent symptom. Very acute pain usually accompanies the injury at the time, and when this immediately follows bleeding, or any wound that is likely to involve a nervous fibre, it should put us on our guard. This very frequently subsides entirely, leaving perhaps some sensitiveness of the part; but either before or after the wound is healed, it returns, shooting up the part, in some instances seating itself along the spine, and in some also running in different distinct directions. It is very often intermittent, recurring sometimes at pretty regular periods, and often in the torturing paroxysms of neuralgia. The fits are apt to be worse at night, and in cold and damp weather. There are very commonly other unpleasant sensations, particularly tenderness on and about the wound or cicatrix, and numb or tingling feelings, running up from this part along the nervous trunks. In one case, besides severe pain in the wounded hand, increased toward evening and in the night, there was extreme tenderness, a feeling of pins and needles in the hands and fingers, most marked in the forefinger and thumb, with pain shooting up the arm,

numbness, and feeling of deadness. This was after a prick of the ball of the thumb in a rather hysterical Irish girl of twenty. The symptoms were believed by the very intelligent surgeon who attended her to be caused by the injury.*

I know a lady of this city who many years ago pricked the thumb near the nail with a needle. Severe symptoms very soon ensued, which confined her a few days to the bed, and seemed to threaten tetanus. Since then, the part has always been extremely sensitive. Picking up a needle with the thumb and forefinger of that hand causes an instant painful thrill running up the arm.

An American girl, rather nervous and delicate, but enjoying tolerable health, three years ago, at the age of about eighteen, thrust a needle into the palm of the right hand a little below the pisiform bone. A piece of the needle nearly an inch long broke off, and was extracted with much difficulty, the surgeon having to work an hour over it. In a day or two, she had pain and swelling of the arm. It was red; whether in streaks or not is uncertain. Pain in axilla; it is not known whether the axillary glands were swelled. Inability to move the arm; she carried it bent, and applied against the chest. In some five or six days the swelling subsided, but not the pain. She had then an attack of erysipelas on the right side of the face, not down the neck. As this passed off, more than a fortnight after the injury, she had trismus and stiffness of the neck; could not open the mouth for about twenty-four hours. Some stiffness remained for a longer time. Her pains became more severe, and extended up the ulnar side of the arm to the right axilla, and thence crossed, both below and above the mammary gland, to the region of the heart. These pains returned daily, and were very severe. She has had some ever since. Is subject at times to palpitation of the heart. The fingers at times are sore and swollen. For about six months after the injury she was confined much of the time to her bed. Toward the close of this period, numbness in the arm also came on, and some paralysis of the face, so that the features were drawn to one side. Her pains are worse when her general health is impaired; they are increased or brought on by fatigue; but rather relieved by mental occupation and pleasant excitements. Her health has been gradually improving, and the neuralgia growing less severe; within six months there has been a great amendment. She has been treated by mesmerism, homœopathy, electricity, &c., but the improvement seems to have been gradual, and uninfluenced by remedies.†

In an instance related by Swan, after a cut on the thumb, there were numb feelings and feelings of "fullness" up the arm for about two weeks. After

* Article on some Effects resulting from Wounds of Nerves, by John Hamilton, *Dublin Jour. Med. Science*, March, 1838.

† These facts are taken from the statements of herself and her friends; the dates are of course uncertain. I am indebted for the facts to the kindness of Dr. James W. C. Ely, of Providence.

the wound had healed, pains came on, which extended over the whole body, especially the upper part, in severe paroxysms, with trembling, but no muscular spasm. The pain was sometimes compared to pinching with hot iron, or hot water poured down the back. After seven years, a gradual improvement had gone on, little influenced, it would seem, by remedies; but there was still an extreme susceptibility. Carrying an umbrella two hours caused a feeling of needles in the hand, pain at the stomach, and headache, lasting a few days.*

Giddiness, temporary loss of sight, nausea, and vomiting, feeling of the teeth being set on edge, have been found to accompany acute pain, following wounds of the upper extremity. The same sympathy of other sensitive nerves with the painful attacks is seen in neuralgia unconnected with injury.

Next in frequency to pain, convulsions of various sorts have been observed, apparently produced by wounds of nerves. The most familiar instances are the twitchings after amputation. When they begin after the wound has nearly or quite healed, these sometimes depend on some nervous fibres being involved in the cicatrix. They have been thought to be worst in operations which left the nerves less perfectly covered, as in the conical stump. In some other cases, convulsions confined to the nerve which had been mechanically irritated have been fatal. In a recent case of Bransby Cooper, ligature of the subclavian artery was followed by severe incessant hacking cough, and in a few days by death. The phrenic nerve was found to be inflamed.

In other instances, the whole injured limb has suffered a great while and very seriously from convulsions, which have made the person's life miserable. In others, the whole body has been affected; and in others again, some particular set of muscles remote from the injured part. I have before me accounts of each of these forms of disease, drawn from journals and from Morgagni's store-house of accurate observations. The treatises of Swan, in England, and Descot of Paris, on local affections of the nerves, are rich in similar narratives.

A young lady was accidentally wounded a little above the wrist, near the radial nerve; and acute pain ensued, which continued with little abatement, extending to the forearm, fingers, and at last up the arm. Convulsive movements then came on in the arm, which resisted the greatest variety of treatment, till three applications of the actual cautery to the scar produced a slough, and complete relief was obtained. She continued well.† Art here accomplished what nature seems to have done in the case I first related in full.

Morgagni tells us of a "noble virgin of Verona," about sixteen years old, who was bitten by a sparrow, on the forefinger. The finger became bent and partly palsied; suppurated, and she had then a fever of some days' length.

* Swan, Dissertation on the Treatment of Morbid Local Affections of Nerves, London, 1820.

† Quoted in Johnson's Med.-Chirurg. Rev., April, 1827, p. 427.

After these symptoms had been removed, a fortnight after the wound, "a sudden tremor, which began first in her feet, and then in her hands, and was from thence propagated through the whole of her body, seized upon the virgin, and brought with it a dangerous and long syncope; on the going off of which, her tremors did not for that reason go off; but, being joined with a groaning, and sometimes with a kind of howling, continued many hours." Attacks like these returned frequently, sixteen or twenty times a day. Whether these attacks, which seem to have been hysterical, were any way connected with the wound may be questioned. Morgagni believed they were; and the history resembles in many points the observation which I related in commencing.

In both the original wound was a puncture, in nearly the same place, over the radial nerve or one of its branches, and healed soon; in both the part was palsied for a time, and then fever ensued. Both patients were of nervous make, and had some catamenial irregularity. Both had some singular affection of the respiratory muscles, the howling and groaning of the one reminding us of the other's barking and croaking.*

When a single set of muscles, distant from the injured part, is the seat of convulsions, the respiratory muscles seem to suffer oftener than any other. An interesting case is reported at length in a late number of the *American Journal of Medical Sciences*.† A young married woman, after pricking her thumb under the nail, had pain and spasm running up to the face and neck; afterward hysterical symptoms, connected probably with the commencement of gestation; and ten months after the injury she gave birth to a dead child, after which she suffered from various wandering painful affections, simulating inflammation. With the earliest attack of this kind, she had "a cough which sounded like the barking of a small dog, of a highly croupy character, without expectoration." As these troubles dated from the time of the trifling injury, we may suppose that this immediately excited the symptoms to which her temperament, and the agreeable stage of family history through which she was passing, made her particularly liable. Such was the opinion of the distinguished physician who had charge of her.

In still another class of cases, the whole spinal cord seems to have been involved, producing affections much more deserving of the name *spinal irritation* than many of those odd hysterical cases where all sorts of bad feelings in the body, accompanied by tenderness in the integuments supplied by the posterior spinal nerves, are very conveniently ascribed to this scapegoat of nervous pathology. *Tetanus* is more frequently caused by the impression made on the system by the reparative efforts of tissues of low vitality, as tendons. But tetanus has in many instances followed wounds of the larger nerves; and in some, related by Larrey and others, the disease was cured by removing the wounded part. Béclard mentions one where the artery that

* Morgagni, on the Seats and Causes of Diseases, &c. Letter LIV.

† October, 1849, reported by Dr. S. P. Hildreth.

accompanies the ischiatic nerve was tied after an amputation. When the wound had nearly healed, fatal tetanus commenced. The sciatic nerve presented at the stump a considerable swelling, containing in its substance a knot of ligature.

Epilepsy has sometimes been cured by removing tumours which pressed on nerves. In one case, the fits were preceded by peculiar feelings running up from the calf of the leg, and a scalpel thrust in two inches deep was so lucky as to hit a body of the size of a pea, as hard as cartilage. This was cut out from among the muscles, and the attacks ceased. Sometimes the *aura* of epilepsy has seemed to set out from a superficial tumour, resembling a cicatrix, which was tender or painful, and on removing which the disease was cured.

I have recently met with the case of a soldier in our Mexican army who had a bullet-wound at the battle of Molino del Rey. The bullet lodged; ten months after this, he had a fit of epilepsy, and for three months after had them every two or three weeks. Dr. Kimball, of Lowell, Massachusetts, cut down and extracted the bullet, which lay "near to, if not in contact with, the sciatic nerve;" close to the ischiatic notch. Up to three months after the operation, when Dr. Kimball reported the case, no fit had occurred.*

It would appear, from a large number of scattered facts, of which I have only given a few specimens, that wounds of nerves sometimes are followed by convulsive movements, either in the very part that is hurt—or in particular parts of the muscular system distant from the injury, particularly the muscles of respiration—or involving the whole frame. These convulsions sometimes appear while the wound remains open too long and inflames, sometimes after it has healed. They are sometimes accompanied by fits of pain, at other times not so. Irritative fever, and the various symptoms of hysteria, occur, in many cases, between the time of injury and the appearance of convulsions. The part often becomes partially paralyzed. The spasms are frequently made worse by cold and damp, and cease during sleep.

A large proportion of these various cases have been in young females, and persons said to be nervous, or hysterical. Yet some occurred in the stronger sex; and a good many of these curious observations are furnished by Baron Larrey, from the battle-ground and camp. Undoubtedly some unknown cause, in the person's previous state, conspires to produce them, or they would not be so rare. Some persons have taken the trouble to try to *prove* that these effects are rare. To show this, they have laid bare and isolated the nerves in living dogs, and then pinched, pulled, cut, torn, and burnt them. It is found that injuries of nerves in inferior animals seldom produce the secondary nervous symptoms we have been describing. But this only illustrates what we all know, that the constitutional symptoms of local injury and reparation are generally less severe in these animals than in man. If

* See Boston Medical and Surgical Journal, Feb. 14, 1849.

such experiments are meant to prove that, in man, nerves are hurt much more frequently than remote convulsive or neuralgic affections are produced, they are at once needless and insufficient.

The wounds to which these consequences have been ascribed were most commonly punctured. After some incised and gunshot wounds, a nerve has been found to be partially divided. This would put the undivided fibres on the stretch, as may be easily shown by experiment. If a nerve be first partly cut across, the fibres will retract but little; on then dividing it completely, the retraction will be immediate and very considerable. Fatal tetanus was caused in one instance by caustic, which the patient applied himself; the nerve beneath (musculo-cutaneus of the arm) was found red and softened for some inches. Foreign bodies in the substance or immediate neighbourhood of nerves—as fragments of bullets, the knot of a surgeon's ligature, the end of a whip-cord, a stick thrust through a hollow tooth—have caused both the painful and convulsive paroxysms. The decayed stumps of teeth act in the same way.

Bleeding at the bend of the arm has sometimes been followed by immediate acute pain, and at a later period by habitual neuralgia or spasmodic attacks. The ill consequences of the wound of venesection most noticed have been the local inflammatory symptoms—particularly inflammation of the cellular tissue, absorbents, veins, and of the fascia connected with the biceps tendon. Some old surgeons, as Benjamin Bell, dwell a good deal on these local inflammations, and seem to confound those of different tissues together. These are all distinct from the nervous affections we are describing, though occasionally combined with them. When the wound of venesection does not heal soon, inflammation ensues in a few days. If the fibres of a nerve are involved, pain runs up the limb, with tenderness. Leeches and cooling lotions have been found to relieve such cases, which are undoubtedly inflammation of the nerve. [See cases related by Swan.]

It is not necessary to point out the analogy between these cases and neuralgia. Those where pain was the chief symptom are merely instances of neuralgia from a probable local cause. The convulsive attacks are quite analogous to those caused by the irritation of teething, and other forms of what Marshall Hall would style eccentric convulsions. They are on some accounts good cases for study, as they throw light on those more obscure instances where the exciting cause is some previous derangement in the bodily functions instead of a visible outward injury. One other disease resembles these facts somewhat. I mean neuroma, or the painful subcutaneous tumour. We have seen that painful and convulsive turns often come on after the wound of a nerve has healed, the scar remaining tender and painful, and appearing to be the centre from which the attacks radiate. Some cases of neuroma seem to have originated in this way. One of the most distressing on record was ascribed to the prick of an awl. These tumours are also much more frequent on exposed parts. But they do not commonly have the struc-

ture of a cicatrix. Most frequently there is a fibrous cyst of small size, containing a firm body, seated near or in the substance of a superficial nerve, and causing, as its chief symptom, intense, intermittent, radiating pain.

I have not sufficient materials to judge of the prognosis in these cases. Mr. Hamilton, of Dublin, says, after relating a number of interesting facts, "All the symptoms, uninfluenced by every remedy made use of, have gradually declined after a long interval, having apparently undergone a natural cure; but in a few instances the termination has been fatal." From the reports I have succeeded in bringing together, it appears that these affections, like many others that begin in irritation, take mainly their own course, and generally tend toward recovery, if placed under good hygienic influences. The painful paroxysms are more frequently rebellious to treatment than the convulsions.

By far the most important remedy for these affections is to cut off the communication between the wounded part and the nervous centres. The wound or cicatrix may be cut out, or destroyed by cautery; the member may be amputated; the nerve may be cut across just above the part injured, or at a distance above this spot, or a part of the nervous trunk may be laid bare and excised. These operations, if performed early, before the irritation extends far, very frequently give relief; but if delayed till the wound has healed, and secondary symptoms have come on, the result is very much less certain. Mr. Mayo, a surgeon of great experience, says that neuralgic pains, immediately succeeding a wound, may be arrested by dividing the wounded nerve above the part injured; but if they commence after the cicatrization of the wound, the chance is that the disease excited in the nerve has extended too far to be relieved by that operation. A number of cases have come under my notice where an operation has relieved pains or spasms months or years after they commenced. The relief has sometimes been instantaneous, at other times more gradual, but in many cases was evidently procured by the operation. I have before me the account of a man who was wounded in the leg by a musket-ball, and eighteen days later, after the wound had healed, began to have some degree of paralysis, with fearful convulsions of the whole body, at intervals. About eight years after the first attack, having been subject to these tormenting paroxysms daily for the greater part of the time, he had a piece of the external popliteal nerve, about two inches in length, cut out, and in a few hours he felt a total change, was composed and tranquil, continued free from the sweatings, palpitations, startings, and shudderings he had had before, and in eight years after had only six or seven much milder attacks.* This is a remarkable instance of an irritation causing disturbance of almost all the nervous functions, and yet, after eight years' continuance, so much dependent on the local lesion as to be substantially cured by destroying the connection between the part and the nervous centres.

* From Descot's *Dissertation sur les Affections Locales des Nerfs*, Paris, 1825. Quoted in Johnson's Med.-Chir. Rev., April 1827.

A lady in this city, many years ago, cut across the end of the forefinger with a sharp knife; the wound did not heal for many days, and some swelling and inflammation followed. About a fortnight after the accident, pains began, which ran up the arm to the shoulder and region of the brachial plexus. After suffering some years in this way, and trying many remedies with no good effect, under the direction of a distinguished Fellow of this Society, now deceased, she had the finger cut across on its palmar surface to the bone. Dr. John C. Warren, who operated, was very far from strongly advising it, and by no means sanguine that any permanent relief would follow. It proved so, however. The last joint of the finger remains a little crooked, the power of using it is impaired; but the pains in the arm, and pricking and tingling in the hand soon disappeared.

Traumatic tetanus has sometimes been cured by removing the wound, or dividing a nerve that was injured. Larrey has furnished several remarkable cases of this kind; and I have just met with a similar fact in the *Dublin Journal of Medical Science*, for August, 1850; and with two reported by an Italian surgeon. In the first-named one, tetanus set in twelve days after a very severe contusion, which left exposed about three inches of the posterior tibial nerve. Next day the symptoms were increasing. Mr. Bransby Cooper then amputated the limb, and the tetanus entirely disappeared. The man died, just a fortnight after, of diffuse inflammation of the cellular tissue.

In the more chronic affections which form the principal subject of this paper, it seems to me that an operation should be advised, when milder measures do not succeed, and there is reason to suppose that an injured nerve, or wound of a part well supplied with nerves, is the cause. But, if there be no tenderness or pain in that part, and no swollen cicatrix, if the fits seem to begin from other parts of the body as well as this, there is more reason to expect harm than good from operating. Such is the recommendation of Pearson and Swan; and such would be my own conclusion from examining a large number of recorded cases.

Since writing the above, I have seen a notice of Dieffenbach's Operative Surgery, in the *British and Foreign Medical Review*, for April, 1846, which states that this eminent practical surgeon takes "a very unfavourable view of the operation under any circumstances. One case of the author, however," it proceeds, "is interesting; very severe neuralgia had followed venesection; the injured nerve was divided, with instant effect, the pains, which had continued for a month, immediately ceasing. A similar case is quoted from Hirsch, in which convulsions and coma accompanied local neuralgia, which were removed by two deep incisions over the wound. But, whether for relief of neuralgia or tetanus, or for any other cause, success is rare; and 'surgery is here under the greatest obligation to physiology for pointing out that the sanguinary path is not the right one.'" This, I would respectfully suggest, is a question for experience, and not for physiology to answer.

The modes of cutting off connection between the injured part and nervous centres will differ in different cases. Mere incision carried across the nerve succeeds sometimes, though the affection may be expected to return in a few weeks. We have just mentioned a case where the relief was permanent. Excision of a piece of nerve sometimes gives only temporary ease. In a boy, near Boston, many years ago, "a portion" of the anterior tibial nerve was cut out, for a most distressing neuralgia caused by injury; how large a portion, I cannot tell; the pains returned some months after. It is impossible to say in a general way how large the interval between the divided ends must be to prevent their reuniting. Ollivier states it at about one inch; but it will of course vary with circumstances.

Decidedly the best results have been obtained by cauterization, which most thoroughly prevents the nervous fibres from reuniting. Larrey employed the hot iron, at a white heat, in many cases of tetanus coming on soon after injury, and with good success. I have before related one remarkable cure of a chronic convulsive affection by the actual cautery.

Benjamin Bell proposed that, in cases of spasm following soon after venesection, the soft parts be very freely and extensively divided down to the bone. His advice, I suspect, has seldom been followed, in a part like the bend of the elbow, where the nerve wounded is usually subcutaneous, while there are large nerves and arteries beneath.

Compression, as by the tourniquet, has sometimes proved very useful as a palliative, actually preventing paroxysms which seemed just coming on. The machines for making more exact pressure on nerves, which were contrived to prevent pain in surgical operations before the days of ether, might be introduced again for the present purpose. The bearing of these facts on the question of a nervous fluid is worth noticing.

The only cases where I have known leeches to be useful are those before alluded to, where a wound remains open, inflames, and is then followed by pain up the limb. In some such cases, the local antiphlogistic course has acted like a charm. Rest is of the highest importance in these instances; motion of the part tending to prevent the wound from healing, and to provoke inflammation. The choice between cooling lotions and warm fomentations must be determined by trial. I should also be induced to follow this local antiphlogistic course, whenever there was tenderness of the cicatrix and up along the course of the nerves.

In one case of long standing, Dr. John C. Warren advised steady, continued dropping of warm water. Rubefacients, as in ordinary neuralgia, are often useful, but by no means reliable. The older surgeons made great use of oily and balsamic applications. We find so sensible a practitioner as Ambrose Paré applying basilicon to a puncture of venesection, followed by acute pain, *for fear the wound should unite*, and afterwards using oil of turpentine, with rectified brandy, and if these should not suffice, proposing to apply boiling oil.

Of other treatment I have very little to say. It should be conducted on the same principles as that of similar affections, neuralgia or spasm, with no known local cause. I suppose the most important points are, to get the patient to breathe as much fresh air as possible, to direct good and nutritious diet, to prevent excitement or fatigues of the mind, to encourage and soothe, without a parade of sympathy, to obviate any functional disturbances, particularly menstrual, and to give tonics as they can be borne, with anodynes only as they are absolutely required. General cold bathing I have known very useful in one severe case in this city. Mercury has sometimes allayed the local inflammatory symptoms, but no more.

The only point of general treatment on which I could have hoped to say anything new is the use of ether or chloroform. In the one case I have reported at length, chloroform completely quieted the spasms, but only for the time. Natural sleep also prevented their return. I have not known a single case of neuralgia, distinctly traceable to injury, which was benefited more than temporarily by these agents. But in other cases of this affection, they have often been useful, not only by procuring an interval of ease, but by putting a stop to the paroxysm. I have more than once seen severe tic douloureux pass off under the influence of chloroform inhaled, and then keep off. Its external use seems to me particularly worth following up. Though not so certain as some remedies, it sometimes acts with surprising quickness and completeness. The union of morphia with it, as practised by the late Dr. J. D. Fisher, increases the probability of permanent good. I have lately known a solution of sulph. morph. gr. x, in chloroform ℥j, as recommended by him, rubbed and laid on the part, to relieve immediately and perfectly severe shooting pains up the arm connected with an irritable ulcer on the finger.* The inhalation of ether in tetanus was tried with sanguine hopes. It has sometimes relieved the spasms and appeared to save life, at other times it has increased them. Its influence on those healthy muscular contractions, like the uterine efforts which depend on the spinal cord as their ganglionic centre, is not uniform; and the causes of this variety are ill understood. These agents have but just begun to show their powers, and experience is as yet various and contradictory on many points, which will at some future time be cleared up. Certainly, however, a mode of treatment which has succeeded in some dozen or score of well-reported cases of tetanus in three or four years fairly deserves to be tried.

This subject is one of scientific, quite as much as practical interest. Yet, though some of us may never meet with facts exactly similar to those we have been considering, it is well for us to be reminded of the rarer forms that disease assumes. The mode in which the system reacts against disturbing causes varies so much in different constitutions as to make an inexhaustible

* M. Dévergie recommends frictions with an ointment chiefly composed of chloroform four parts, to thirty parts of lard. He mentions a case of facial neuralgia permanently cured apparently by inhalation of chloroform.

subject for study. A little puncture, or sudden excitement of feeling, aided by some peculiar impressibility which, perhaps, never showed itself before, may produce speedy death. On the other hand, men have recovered after having the thorax skewered by the shaft of a chaise, or a tamping-iron shot through their brains. The remembrance of such facts will keep us from too great confidence in prognosis—an error which is as easily perceived, and perhaps does a physician as much harm, as any mistake in the actual management of a case.

One other topic suggests itself here. The public do not understand this uncertainty, which springs from the very nature of life. The physician, oftener the surgeon, is sometimes held answerable for a good result, as if he were dealing with mere machinery, governed by the laws of lifeless matter alone. Sometimes the trial by jury, which so many fine things have been said about, is turned into a mockery, that would be simply ridiculous, if it were not grossly arbitrary and unjust. A dozen men, wholly unused to observing disease, unacquainted with the laws even of health, unable to comprehend the difficulties of the subject, bound by the strong ties of caste to bear hard on the professional man, leagued by common ignorance and prejudices and jealousy with the natural bone-setter or Indian doctor who provoked the suit—these, too often, are the "intelligent and impartial" jury, who are to decide what the surgeon ought to have made nature do with a constitution no one knows how much impaired, under injuries whose consequences a Cooper or a Warren would not dare to foretell. This can only be remedied by the gradual spread of general intelligence and information, giving us better juries. But we can lessen the evil by resisting the temptation to run a race with quacks in confident promises. By such a course, we may see cases carried off by other men of more flippant tongues, more ignorant, or less honest. But we shall be less exposed to this unpleasant demonstrative instruction in forensic medicine, and we shall make our calling more truly respectable and useful.

ART. V.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

Sept. 9, 1850.—*On certain Phenomena connected with Etherization.*—Dr. SAMUEL KNEELAND read the following paper.—It is generally admitted that the condition of etherization is analogous to that of intoxication; the first symptoms being those of stimulation, the following those of narcotism.

The curious fact that sensibility may be destroyed while the intellect is active seems to find an explanation in the view of Dr. Carpenter, "that the

seat of pain, or tactile sensibility, is in the great cephalic ganglia, while the intellectual functions reside in the cerebral lobes."

Longet, from certain cases where, with the usual signs of pain, no pain has been suffered; in other words, where the pain has been *felt*, but not *perceived*, from the supposed affection of the *cerebral lobes* without the *ganglia*—has maintained that in these cases the *lobes* are first affected, contrary to Dr. Carpenter's opinion. These cases of imperfect etherization, as we now know they were, hardly justify his conclusions; for the signs of pain might be equally well considered as *reflex* actions depending on the still preserved integrity of the *true spinal marrow*, which does not appear to be etherized till after the *cerebro-spinal* system.

Flourens, one of the first experimenters on this subject, has given the following as the order in which the nervous system comes under the influence of ether: cerebral lobes, cerebellum, spinal marrow, lastly, the medulla oblongata. It is now evident, from the better understood phenomena, that this order must be somewhat changed, as follows: the cerebellum; cephalic ganglia; true spinal marrow; ganglia of special sense and cerebro-spinal system; and the cerebral lobes last of all—if indeed the latter can ever be fully etherized without fatal results.

M. Pappenheim, in experiments on the structure of nerves which had lost their functions under the influence of ether, says that a very slight alteration may destroy their function; the fluidity of the nervous mass diminishes, and the nerve shrinks and is separated from its sheath. This effect varies with the consistence of the sheath, and the fluidity and chemical nature of its contents. He also discovered that the peripheral fibrils of a nerve may lose their sensibility before the central ones. This may explain why the delicate nerves of the cerebral ganglia should lose their functions sooner than the grosser spinal nerves; in a word, why the functions of the nervous system should be *successively* abolished.

Ether enters the system both through the nerves and blood-vessels. Its influence conveyed by the pulmonary nerves unquestionably produces its primary stimulating effect; while its narcotic effects are produced through the blood-vessels of the lungs.

Flourens has noticed a curious phenomenon connected with ether, which he does not account for. He had proved that ether inhaled by the lungs destroyed sensation before motion; he afterwards found that ether injected into an artery, on the contrary, destroyed motion before sensation. It would not be supposed, *à priori*, that the same agent introduced into the blood at two different points would affect the nervous system in opposite manners. As the course of the circulation in the latter case is in the direction of the *motor* nervous influence, while in the former it is in the direction of the *sensitive* influence, perhaps the phenomena are in this way connected. The injection of ether into the *veins* produces the same effect as its inhalation.

Amussat and others maintain that the insensibility produced by ether and

chloroform depends on *asphyxia*, on insufficient oxygenation of the blood; and that this is proved by the change of the colour of the blood from bright arterial to dark venous, this change always preceding insensibility; though the change is so quickly reversed, that breathing pure air for a few seconds brings back the arterial colour. Ether has been supposed to cause asphyxia by obstructing the endosmosis of oxygen by the capillaries of the lungs to such an extent that an increased supply of oxygen with the ethereal vapour does not retard the period of insensibility. This opinion was strengthened by the fact that the same insensibility could be produced by other gases (not poisonous) improper for respiration, as carbonic acid, nitrogen, hydrogen, nitrous oxide, &c. But we know that the insensibility from ether is not due to a cessation of pulmonary hæmatosis, as an animal may be as quickly and as fully etherized by injecting ethereal vapour into the rectum, or ether into the circulation, the lungs being left perfectly free for the oxygenation of the blood. There is no necessary connection between the dark colour of the arterial blood and ethereal insensibility; if the blood be dark, and there be commencing asphyxia from deficiency of respired oxygen, it is not essential to, and indeed ought never to occur, in the process of etherization; for, though asphyxia be a sure way of causing insensibility, it is not the safe insensibility from ether or chloroform. It would seem that a comparison between the first applications of ether (when many accidents undoubtedly happened from partial asphyxia) and the present method (where a full supply of oxygen is secured) should be sufficient to show that ether has a special and *primitive* action upon the nervous centres, quite different from that produced by gases unfit for respiration; and that, if asphyxia sometimes occur, it is a complication and a *secondary* phenomenon.

Though asphyxia be the result of a deficiency of oxygen, or, what is here equivalent, an undue accumulation of carbon in the blood, there may be a condition, without deficiency of oxygen, and at the same time with an increased supply of carbon, which might be called asphyxia, and which might give a dark colour to the blood. Now, the first condition, asphyxia proper, is fulfilled by the irrespirable gases; the second by ether and chloroform, both of which are rich in carbon, and yet may be introduced to the nervous centres with properly oxygenated blood in the space of twenty seconds. The question here naturally arises, whether the peculiar effects of these agents do not spring from a chemical action of *carbon* on the fatty and albuminous constituents of the nervous tissues. The action of alcohol, also rich in carbon, would allow a similar explanation, viz., the action of *carbon* on a brain stimulated by properly *oxygenated* blood.* Similar effects would also be produced by a blood

* We know that, of two liquids containing an equal amount of alcohol, that one which contains the most carbonic acid possesses the most intoxicating properties. Compare, for instance, champagne and hock, each of which averages about 12 per cent. of alcohol; or fresh and stale ale. Even drinks containing no alcohol, but highly charged with carbonic acid, as the "soda-water" of the shops, produce not a little exhilaration in those unaccustomed to their use.

containing such an extra amount of *carbon* as to render it unfit for keeping up the activity of the cerebral circulation; so that ether might as effectually suspend the circulation through the brain as Sir Astley Cooper's experiment of tying both carotids, and then compressing the vertebral arteries; which produced in an animal immediate loss of sensation and motion, both coming on again when blood was re-admitted. With this view, there would be excess of carbon in the cerebral vessels, stagnation of their circulation, and consequent insensibility. In both cases, excess of *carbon* being the cause of anæsthesia.

Chloroform has been supposed to exercise its influence principally on the *blood*, while ether acts on the nervous tissue; chloroform by rendering the blood unfit for the stimulation of the brain, ether by rendering the brain incapable of excitation. Some of the deaths produced by chloroform have been ascribed to its causing air in the vessels; and in some of the autopsies, particularly of Madlle. Stock (whose case was the subject of Malgaigne's Report on Chloroform before the French Academy), air has been found very extensively in the vessels; but whether this was common atmospheric air, or carbonic acid, or some other gas from decomposition of the blood during life or after death, no examination seems to have decided. Chloroform has a marked chemical action on the blood, which might give rise to this great and sudden development of gas; carbonic acid exists normally in the blood; chloroform might disengage an abnormal and fatal quantity, or it might again assume a gaseous form itself in the vessels. Chloroform increases the quantity of the serum, thus accounting for the remarkable fluidity of the blood so often noticed, and diminishes and condenses the fibrin; hence, the poorer the blood, the more dangerous must be the consequences of its use. According to Guérin, the globules of the blood, brought into contact with chloroform, contract, lose their colour and form; little bubbles of air arise on their surface; and some of them entirely disappear.

It is generally admitted that chloroform is much more dangerous than ether; and it would be interesting to know upon what its fatal results depend. Asphyxia may be left out of the question. Does it act on the nervous tissue, or on the blood primarily? are its effects due to an instantaneous poisoning of the blood, as some have supposed? or does it paralyze the nervous substance? Does it cause the phenomenon of air in the heart and vessels, and is death caused by this lesion?

Dr. KNEELAND added that, on these and kindred questions, of great interest and importance, which naturally presented themselves, he should be glad to hear the opinions of gentlemen who had had greater experience in the use of anæsthetic agents.

With reference to this subject, Dr. JACKSON mentioned a case of etherization which proved fatal, in which there was a development of gas in the heart. Although the examination was made but a few hours after death, the signs of putrefaction were quite marked.

Dr. TOWNSEND thought that in many cases there was a spasm of the ves-

sels of the lungs, resembling asthma, produced by the first inhalation of ether, which might interfere with the proper oxygenation and decarbonization of the blood. Dr. T. had noticed, in some cases, a coating of saliva covering the surface of the sponge, which it was necessary to remove, as it prevented all access both of ether and of atmospheric air.

In answer to a question by Dr. HAYWARD, Dr. BETHUNE remarked that he had not found asphyxia so likely to follow the inhalation of *sulphuric* as of *chloric* ether.

Nov. 11.—*Sudden death from probable Chronic Disease of the Heart, combined with Œdema of the Lungs.* Dr. BOWDITCH reported the case.—The patient was a lady, forty years of age; active in mind and body; seven months advanced in pregnancy; formerly had had pulmonary difficulties; within the last year has had dyspnœa with palpitation. Some time since, after waltzing, had palpitation and hæmoptysis; quite lately, recurrence of hæmoptysis; quantity of blood expectorated about a teaspoonful. Both of these accesses followed bodily and mental excitement, having been waltzing on one occasion, and on another having visited friends in the city. The last and fatal attack was while in the city. Dr. B. was called to her, and found her at the house of one of her acquaintance, which she had with difficulty reached, having been seized with dyspnœa while walking. She was breathing very hurriedly, with great distress, and coughing occasionally; raised large quantities of watery fluid, quite drenching several napkins. She was in a sitting posture, scarcely able to speak—begging for air, with hands livid and cold, and pulse scarcely perceptible. Dr. B. directed the application of external irritants, heat to the extremities, and syrups, nitrous ether, &c., with a view to exciting the circulation and relieving the cough. Patient grew worse and more distressed. Dr. Ware, sen., saw her in half an hour after the attack, in consultation with Dr. Bowditch. During a temporary absence of Dr. B., the patient rose suddenly from the bed, in a paroxysm of dyspnœa, fell back, and died immediately. Dr. B. detected very fine crepitant râle in right back, throughout, during a very hasty examination; the condition of the patient not allowing anything more than the most trivial exploration. No post-mortem examination could be obtained. Dr. B. thinks there must have been chronic cardiac disease, and that this was conjoined with pulmonary œdema, which, suddenly occurring, had suffocated the patient.

Nov. 11.—*Encephaloid Tumour between the Rectum and Bladder, with the same disease in the Liver.*—Dr. JACKSON reported the case which he had recently observed, and which occurred in the practice of Dr. M. S. PERRY. The patient was sixty-four years of age, had formerly been a seafaring man, but for many years had led a very sedentary life. Subject to hemorrhoids, and habitually costive; but otherwise healthy. Last February there came on pain in defecation, and often so urgent as to require opiate injections. Large

doses of cathartic medicine required at first; but about the month of April diarrhœa came on, and continued almost without intermission until death. Extensive sloughing took place about the months of May and June, and with much relief to pain, though there continued much tenesmus; dej. involuntary. In May and June, hemorrhage occurred frequently, and to such an amount as to threaten life. Patient also suffered much from dysuria, became greatly reduced, and gradually sank under the disease, but without any symptoms referable to the liver.

On dissection, the cavity of the pelvis was found to be filled by an extremely soft and well marked encephaloid mass; partly white, but more or less coloured by blood, of which there was a considerable effusion. In the midst of it was a cavity one and a half inch in diameter, and formed perhaps from such an effusion; the inner surface being generally smooth, and of a deep brown colour, but having some old coagula adhering to it. The rectum had sloughed entirely away, to the extent of about five inches; commencing just above the anus, and involving the whole circumference, except for a narrow, irregular, thin strip. The edges of the intestine were soft and much discoloured, but not at all carcinomatous; the mucous surface just above the disease being healthy; and it was upon this last circumstance that the tumour was supposed to have originated externally to the intestine. The large intestine contained throughout a considerable quantity of soft feces. Bladder somewhat reticulated upon the inner surface, but otherwise not remarkable.

The liver contained great numbers of carcinomatous masses, generally tinged by effused blood, though some were of a pearly white colour. Hemorrhagic tendency strongly shown, though there were no large effusions. The most unusual appearance in this organ was the formation of cysts, varying from half an inch to an inch in diameter; some contained clear, yellow serum, and were lined by a serous-looking membrane; others contained almost pure blood, viscid and very dark; but generally there was a mixture of blood and serum. As in the case of the cyst in the pelvic mass, the inner surface was often smooth, and of a dark brownish colour, as if formed from the effused blood, with some opaque buff-coloured deposit, which under the microscope was found to be fat; other cysts were lined by a white encephaloid substance, or by a mixture of this and effused blood. In one or two places, there was found, to the extent of about two-thirds of an inch, a very delicate, yellowish, lax, cellular tissue, infiltrated with serum, but quite defined, and without a trace of encephaloid or effused blood; an appearance not very unlike what is occasionally found in the brain after an old apoplectic effusion. Intervening structure healthy, as usual in these cases. Organ not enlarged. No peritoneal adhesions; nor was any further disease found in the other organs.

Nov. 25.—*Encephaloid Disease of the Liver and Stomach. Pulmonary Apoplexy; with Rupture into the Pleural Cavity.*—Dr. JACKSON reported the case, which occurred in the practice of Dr. ALLEN, of Cambridgeport, and which

he examined a few days ago. The patient was a farmer, aged fifty-four, and of robust health, except that for several years he had been subject to lead colic, the lead pipe that supplied his house with water being very much corroded; there was also the characteristic blue line about the patient's gums. Last April he took, for an obstinate attack of constipation, very active cathartics, and at last croton oil; this was followed by intense pain in the abdomen, which lasted for several hours, and more or less for some weeks. From that time until his death he complained of distress, and often of urgent pain in the region of the liver, tenderness on pressure over the organ, and a sense of weight so that he was unable to lie upon the left side, and often, when sitting up, was obliged to incline forwards upon the back of a chair; the distress he often compared to constriction as from a cord about the waist. The liver was felt to be enlarged when Dr. A. saw him about six weeks ago, and increased considerably in size before death; dej. clay-coloured at that time, but under the use of the hydriodate of potash the colour soon became natural; skin never yellow; never complained of his stomach; appetite sufficiently good until the last three weeks, and he even ate a slice of boiled beef four days before death, and bore it well. This comparative latency Dr. J. has observed in several other cases of carcinoma of the stomach, where the disease seems to have supervened upon that of the liver. No hæmoptysis, nor any other symptom tending to a suspicion of pulmonary disease. Patient became much emaciated; but kept about until three weeks before death, from which time he was confined to his bed.

On dissection, the liver weighed about nine pounds ten ounces, and was filled with encephaloid masses of about the average consistence, contrasting strikingly with the case last reported, as it did also in the fact of there being nowhere any effusion of blood in connection with the carcinomatous deposit. There was also another striking difference between this case and the other, in regard to old peritoneal adhesions, which here were universal between the liver and the diaphragm. Such adhesions Dr. J. has rarely, if ever, observed in other cases of this disease, and he is disposed to connect the fact with the local symptoms, of which the patient had complained so much during life; the disease, when confined, as it usually is, to the interior of the organ, being not unfrequently met with when nothing had led to a suspicion of its existence.

The pyloric portion of the stomach was pretty extensively carcinomatous, with ulceration, which penetrated into the muscular coat, the structure being whitish and condensed; the cellular membrane and lymphatic glands in the neighbourhood were also affected; and there were traces of the disease upon or beneath the diaphragmatic pleura on the right side, and the peritoneal surface within the cavity of the pelvis.

The left side of the chest was observed to be somewhat enlarged, and very resonant on percussion; and on puncturing it there was a free escape of inodorous gas. The cavity contained five or six ounces of nearly pure blood,

and over the anterior portion of the lower lobe was a thin, filmy deposit of fibrin, apparently from the effused blood; there being no appearances of pleurisy. Beneath this fibrinous deposit the pleura was stripped up to some extent, and in the substance of the lung immediately beneath it was a ragged cavity, which, though empty, was capable of holding two or three ounces; the surrounding pulmonary structure being more or less infiltrated with blood; into this cavity the air entered freely from a neighbouring bronchus on inflation. Pulmonary apoplexy was also found to a considerable extent in the back part of the upper left lobe, and to some extent in different parts of the right lung, but without any further breaking down of the structure. Dr. J. had never before met with laceration into the pleural cavity in these cases, but referred to Cruveilhier's remarks upon its occurrence. The other organs were healthy.

Nov. 25.—*Buttons in the Intestines producing symptoms of obstruction.* Case reported by Dr. HOMANS.—A male child, aged 14 months, on the 23d of October seemed quite unwell, after passing an uneasy night. There was strong effort at expulsion of matters from the bowels. Under these straining attempts, some feces passed, without relief of symptoms; pulse accelerated; skin hot; tossing of head, &c.; slight vomiting also occurred; suspicion of intussusception arose. In the night, the above symptoms having been on the increase for twenty-four hours, a teaspoonful of castor oil was given. Through the night severe pain of paroxysmal nature; the intervals marked by perfect ease; the pain being compared by the mother to uterine efforts in parturition. On the following day, the child was much more ill and feverish, and Dr. H. saw it at nine o'clock A. M.; tenesmus urgent; patient moaning; skin hot; pulse full and quick; a slight discharge of bloody water from bowels. On palpation of abdomen, a hard swelling was detected, about half way between umbilicus and crest of right ilium, of the size of a pullet's egg. On examination by the rectum, a hard mass was discovered, somewhat yielding to pressure by the finger. A large enema was given from a powerful syringe, which was unsuccessful; the fluid being returned before overcoming the obstruction. A second injection was given; in a short time an explosive sound (internal) immediately preceded the discharge of a large lump of solid feces, pushing before it a small *button;* several dejections followed in quick succession, composed of solid and fluid matters, among which were passed *seven buttons,* made from horn, porcelain, and metal, and varying in size from those used for pantaloons, to the ordinary shirt button. The child was soon relieved, and has been well since. Nothing had passed from the bowels for forty-eight hours previously to the attack.

Dr. Homans remarked that the case was important as illustrating the necessity of accurate diagnosis; several of the distinctive features of intussusception and hernia being present, viz., the discharge of bloody fluid, and the tossing of the head so often noticed in intussusception; while the coldness of

the external surface, frequently remarked therein, did not exist in this case. There was slight vomiting at first, and likewise the inability of passing feces, even with violent effort, which might have led to a suspicion of hernia. The detection of a tumour by the finger suggested the use of an enema, as affording a chance for the removal of any foreign body obstructing the intestine.

Nov. 25.—*Collection of Pus in the cavity of the Uterus; operation for opening Os Uteri, closed by a firm Septum; progressing recovery from uterine disease; subsequent death, after gastric disorder, induced by excess in eating.*—The subject of the subsequent report was a patient of Dr. HYNDMAN, of this city, from whose letter, giving a history of the case, as first observed by him, the following abstract is presented. The letter was read to the Society by Dr. STORER, who afterwards saw the patient in consultation, and whose observations will be given below.

Dr. Hyndman first visited the patient on 3d of August last; nine days previously, on the second day of a regular menstrual period, patient wetted her feet; catamenial discharge ceased suddenly. Patient reported having had a *rigor* the day before Dr. H. first saw her; acute pain in left side followed, "extending from the crest of the ilium, upwards, as far as the edge of the floating ribs, and as far forwards, towards the mesial line, as the umbilicus." Calomel and opium, in combination, were given, and "turpentine stupes" applied over abdomen. The above-mentioned pain extended, after three days interval, across mesial line, towards right side; but little pain was complained of, at any time during the attack, over the pubic region: nothing would have excited suspicion of metritis. The patient improved under the above treatment, and, in a fortnight from the time when she had the *rigor*, was able to be about. Three weeks later (six weeks from time of sudden suppression of menses), patient called to say "that she had not been *unwell* for six weeks;" she was pale and "chlorotic" in appearance. Dr. Hyndman prescribed tonics; a week afterwards, on seeing his patient, Dr. H. was told by her that she had noticed "something of a swelling," just above pubis; on examination, Dr. H. observed "an unusual fullness in that region;" he supposed it might be retained menstrual fluid; swelling, however, was not very marked: *savine*, in conjunction with the other medicines, was ordered. Shortly after, imprudence in eating induced an attack of gastric irritation, accompanied by pain and vomiting. Relief by opiates. Six weeks after this, the abdominal "swelling," before mentioned, had so increased that the appearance was that of a person in the seventh month of utero-gestation. Dr. Storer was now called in consultation.

Continuation of the Case. By Dr. STORER.—Dr. S. saw this patient with Dr. Hyndman, on the 11th inst., and found her to be a young woman seventeen years of age. Her abdomen was as large as that of a woman's far advanced in pregnancy, presenting a peculiar form, however, the enlargement being anteriorly, as if something projected directly forwards—there was but slight

fullness laterally. She complained of some tenderness in abdomen, upon pressure. The breasts were not enlarged, and no change in the areolæ could be perceived. Upon examination, *per vaginam*, which produced considerable uneasiness, the body of the uterus was found to be somewhat distended, and upon pressure gave to the finger the sensation of contained fluid. She has had no discharge of any kind from the vagina since the suppression of her catamenia. Dr. S. agreed with Dr. Hyndman in his diagnosis—*that the uterus was distended by fluid*—but, as the menses had been suppressed only about three months, he thought that they alone could not have produced the great tumefaction, but that, acting as an irritating cause, they had probably excited the uterus to pour out an abundant secretion besides. It was proposed to pass an instrument into the os uteri to empty the organ of its contents. Dr. Hyndman consenting, Dr. S. endeavoured, the sixth day, to pass a *gum-elastic catheter*, supposing that there would exist only a simple agglutination of the lips together—but was surprised to find that the instrument would pass but a short distance beyond the os uteri, and that only by applying considerable force—and when withdrawn, its extremity was covered with mucus and blood. *Simpson's sound* could be passed with no more ease. Dr. S. decided that the adhesion of the cervix was so firm as to require a trocar, or some other cutting instrument, to remove it, and suggested that the operation should be performed by a surgeon. Dr. J. M. Warren saw patient the following day, and after a very minute examination of the case, coincided in the above opinion—and passing a trocar into the os, and then, with considerable force, through the adhesions of the cervix, freed the uterus of *seven pints of offensive pus.* The girl is now (25th) doing well, although more fluid is evidently collecting in the uterus.

It would appear, from the above history, that with the *peritonitis*, produced by the sudden suppression of the catamenia, *metritis* had existed—which united the lips of the os, checked the menstrual function, and caused the lining membrane of the uterus to pour out this great quantity of purulent matter.

It may not be uncommon for *metritis* to exist, and for any secretion to be poured out of the uterus, which may be the result of the inflammation—but from the fact that several writers make no reference to any *collection of pus* in the uterus, and that the translator of Boivin and Dugès' work points to a case of this description by Dr. John Clarke, contained in the third volume of the "Transactions of the Society for the Improvement of Medical and Chirurgical Knowledge," it is inferred that cases of a similar character to that now reported must be of rare occurrence.

Upon looking up Dr. Clarke's case above referred to, Dr. S. found it entitled, "Case of a Collection of Pus in the Cavity of an unimpregnated Uterus." In this case, the patient was sixty-five years of age, and had ceased to menstruate for several years. After having a discharge, for several weeks, from the vagina, which was at first sanguineous, but afterwards became of a brownish colour, and offensive to the smell, "the patient was suddenly seized upon waking,

during the night, with violent pain in the lower part of the abdomen, and a sensation as if something had given way there." The next day she died. Upon an examination of the body after death, the uterus was found gangrenous, and perforated at its upper part—through which opening, pressure being made, a quantity of offensive pus issued; seven or eight ounces of similar pus were found in the cavity of the abdomen, which had been poured out of the uterus, and about five ounces were still retained in that organ. The orifice between the cavity of the uterus and its cervix was closely contracted, so as not to have allowed the contents of the uterus to be discharged through it; and the previous discharges which had existed "must have been poured out from the cervix and os uteri, and from the vagina."

Sir Charles Mansfield Clarke, in his "Observations on those Diseases of Females which are attended by Discharges," speaks of two cases of large collections of pus being produced in the uterus by inflammation; in one of them, "the uterus was found to be so much enlarged as to fill the cavity of the pelvis." A spontaneous discharge of the fluid finally occurred from the vagina, and the patient recovered. In the next case, "the pelvis was found completely filled by an enlarged uterus, which was also perceptible above the pubis," a sudden discharge of offensive pus took place through the rectum, which continued to flow for a time with the feces, and then entirely ceased; the uterus returned to its normal size, menstruation took place, and the patient recovered. * * * * * *

At a subsequent meeting of the Society (Dec. 23d), Dr. Storer reported as follows in regard to the patient whose case is above given. Three pints of pus, in addition to the former quantity, had been removed from her uterus, by Dr. J. M. Warren, four weeks after the first operation. About a week after the second operation, having, for weeks, lived upon a liquid, farinaceous diet, the patient ate immoderately of potatoes and cabbage; immediately after this meal, she was attacked with bilious vomiting and purging, which resisted all remedies, and she rapidly sank and died. Dr. Hyndman, who had charge of her, says that not the slightest febrile action followed either of the operations, but that she was doing very well, until the above narrated excess in eating was committed. No post-mortem examination was obtained.

Dec. 9.—*Scirrhous Tumour of the Rectum and Bladder.*—Dr. J. M. Warren exhibited a specimen of scirrhous disease of the rectum, and stated the case, which was as follows: The subject was a gentleman fifty-six years old. Nineteen years before, he had been operated on for the piles, and at that time a small hard tumour was discovered near the anus, which he declined having interfered with. He has occasionally had attacks of pain in bowels and indigestion, but never any serious symptoms in the rectum. He has always had diarrhœa since. About a year ago, Dr. W. was called to him on account of a retention of urine, and on an examination being attempted per anum, it was found that the rectum was obstructed by a scirrhous mass, which pre-

vented the introduction even of the little finger. The retention was gradually overcome by the use of the catheter in the course of a fortnight, and the patient has had moderately good health during the summer. Two months since, Dr. W. was called to him with a second retention, which gave way to remedies, without the use of the catheter. It was, however, shortly followed by a universal dropsical effusion, and the patient gradually sank exhausted.

On examination, the last four inches of the rectum were found pervaded by a scirrhous mass, leaving in the centre a narrow pathway for the feces. The disease had extended to the bladder and urethra, so as to encircle the tumour and apparently to implicate what has been called the middle lobe of the prostate gland, which projected into the bladder and occupied about a third of the cavity.

Owing to the loose state of the bowels, this patient had been able to live for nineteen years with this tumour, and suffered but little inconvenience from it, and in fact was not made aware of its existence by any pain or other sensation, unless by an occasional irritation of the skin in the neighbourhood, on account of the imperfect manner in which the evacuations were controlled.

The left kidney was in a high state of inflammation, and there was some purulent deposit in the pelvis of that organ; the ureter was not extraordinarily distended.

It might be stated that, during the last week of his life, he refused food entirely, on account of the difficulty and pain in swallowing, caused by an inflammation in the fauces. Very severe hiccough ensued, which was mitigated, and the last part of his life made easy, by the use of chloric ether administered from time to time on a sponge by the nurse, as occasion required.

Dec. 9.—*Acute Nephritis; latent.*—Dr. JACKSON exhibited the specimens, and reported the following case, which he examined a few days ago, and which occurred in the practice of Dr. John Ware. The patient was a woman fifty years of age, and had been sick since the summer of 1849. Disease came on with vomiting, purging, and excessive pain in the abdomen, lasting more or less for several weeks. Last February, Dr. W. saw her, with much the same symptoms; there was then also felt a tumour below the right hypochondrium, varying much in size at different times, and usually very tender and painful; whole abdomen occasionally distended and tympanitic; she gradually sank; the immediate cause of death being probably the nephritis, or a pneumonia which was found to some extent, though no symptoms referable to either disease were observed during life. The urine not being deficient in quantity, though for a short time before death it deposited a thick lateritious sediment.

On dissection, both kidneys were found most extensively inflamed, and the form of inflammation very much like what is observed in the case of purulent deposits; being in distinct foci, from a fourth to half an inch in extent, and characterized by an effusion of thick pus, or by a mixture of pus and lymph,

or by the simple infiltration of lymph; the redness about the deposits being very limited, and evidently due, in part, if not wholly, to the extravasation of blood. Where pus alone is found, proper abscesses are of course formed. The intervening structure healthy; the tubular portions being scarcely, if at all, affected; mucous membrane very slightly affected. The idea of phlebitis not having occurred, the veins were not examined.

The stomach and intestines were examined carefully throughout, and found to be quite healthy. The liver, however, was somewhat diseased in structure; and though not generally enlarged, the right lobe was prolonged downwards nearly to the ilium, forming the very distinct and movable tumour felt during life. The absence of any disease in the alimentary canal, even supposing the liver to have been previously affected, appeared to be an interesting circumstance.

Another curious fact was observed in this case, and which Dr. J. has met with once before, though he has never heard the possibility of it alluded to, and that was the existence of a small distinct tumour formed by the pylorus, though this portion of the stomach, as well as every other, was healthy, the thickness and consistence being perfectly normal. The tumour was as distinct after death as before, and the explanation of it was determined as soon as the abdomen was opened.

Dec. 9.—*Tumour of the Orbital Cavity. Extirpation of the Eye.* By Dr. Hooper.—The patient from whom this disease was removed was a pale, feeble-looking man, fifty-three years old. The disease had existed in the left eye for three years, was never attended with any severe pain, but a sense of weight and uneasiness. The eye was much protruded, the organ itself not enlarged, cornea transparent, much chemosis of the conjunctiva and eversion of the lower lid, vision entirely gone for the last two years. Oct. 29. An exploratory incision gave issue to a quantity of serous fluid, and the protrusion became much diminished, but again increased; and on the 26th of November, the eye was removed (patient under the influence of ether). There was found behind it, and slightly adherent to the sclerotica, a tumour, which, examined by Dr. H. J. Bigelow, was found to be of a semi-transparent structure, and of an albumino-fibrous nature. Dr. Bigelow showed drawings of the microscopical appearances; simple nucleated cells, with no appearance of a cyst.

Dec. 23.—*Case of Encysted Ovarian Tumour.* Reported by Dr. Coale.—Mrs. H., æt. sixty-eight. Has had four children. Health not good after birth of last. Menses irregular for some time, and ceased at age of forty-three; health much restored afterwards. Early in 1843 fell down a few steps, striking the lower extremity of the spine; fainted at the time, and felt very ill. Returned home the next day, three miles distant, and was confined to her bed three weeks, and three to her room—in all, six weeks. From that time her health declined, and on the 12th of the following April (three months after the acci-

dent), the appearance of enlargement in the left iliac region commenced. By the 29th of October, 1845, about thirty-two months after the accident, the enlargement was so great as to require tapping. The operation was repeated, and the quantity of fluid discharged is as follows:—

	lbs.		lbs.		lbs.
1845, Oct. 29th,	30	1849, Nov. 9th,	23	1850, August 1st,	15
1846, June 23d,	18	Nov. 29th,	22	Aug. 12th,	15
1847, Feb. 17th,	25	Dec. 17th,	21	August 23d,	11
Aug. 3d,	20	1850, Jan. 5th,	21	September 3d,	11
Dec. 14th,	24½	Jan. 22d,	21	September 14th,	14
1848, Ap. 13th,	28	Feb. 8th,	22½	September 24th,	14
July 12th,	27	Feb. 23d,	24	October 3d,	14
Sept. 18th,	23	March 10th,	21	October 12th,	14
Nov. 16th,	26	March 26th,	19	October 22d,	16
1849, Jan. 17th,	27	April 9th,	19	October 31st,	14
March 4th,	26	April 23d,	18	November 8th,	15
April 13th,	25	May 7th,	16	November 16th,	12
May 21st,	20	May 20th,	16	November 24th,	16
June 25th,	22	June 1st,	16	December 2d,	12
July 28th,	22	June 14th,	18	December 10th,	13
Aug. 26th,	29½	June 27th,	15		
Sept. 22d,	27	July 9th,	13	Total, 51 tappings,	989½ lbs.
Oct. 17,	26	July 20th,	12		

The form of the tumour during life could be readily distinguished through the walls of the abdomen, lobulated, not tender, with a very limited mobility. Across the lower part, coming from the left side on a level with the anterior superior spinous process of the ilium, and disappearing about the pubis, was a very perceptible band, soft and elastic, giving a sensation of containing fluid. This, on examination after death, was found to be the sigmoid flexure of the colon, forced forwards and upwards into that unlooked-for position apparently by the tumour commencing immediately behind it, and carrying it up with its growth. With the exception of obstinate constipation, and an occasional pain at the epigastrium when the distension was great, there was no particular suffering during the progress of the disease; and the clearness of mind and cheerful temperament of the patient were maintained till within an hour or two of the decease. In tapping, a variation of the operation was practiced, which may be worth mentioning. Upon emptying one sac, without withdrawing the canula, the trocar was reintroduced and pushed into another, and sometimes into a third and fourth. In this way the bulk of the tumour was much more diminished than would have been done by the puncture of one sac alone, and without any additional pain or danger to the patient.

The fluid at the first operation was thin and clear; latterly, it became as thick as the white of an egg, and occasionally turbid, with considerable admixture of lymph. Some of the smaller sacs, however, discharged in the manner above described, contained a fluid of almost inky blackness.

Death occurred from very gradual exhaustion of nature. Examination after death displayed the tumour—a thin sac, fitting the cavity of the abdomen. It was covered partially on the right by recently effused lymph—the result of a slight peritonitis of the last few days. Attachments existed with

the anterior walls of the abdomen for the space of about four inches square, where the punctures had been made, and more extensive ones in both iliac fossæ. The os uteri was almost obliterated—the uterus lengthened—its posterior wall closely attached to the tumour. The right Fallopian tube was free; the left and its ovary lost in the tumour. The larger sac broke in handling it, displaying in its interior numberless others of various sizes, and these in turn containing others.

Dec. 23.—Dr. Bowditch reported the following case:—An Irishman, thirty-five years of age, a corn-measurer, had been for a long time exposed to the dust of grain, and a cough had been often excited by it. Finally, copious "vomiting of blood" occurred (according to statement of patient). The last hæmatemesis took place about three weeks since; but there had been three attacks during the year, and, each time, about a quart had been lost. Patient referred all symptoms and sensations to his *stomach.* On inquiry, Dr. B. found he had had slight cough at other times than when inhaling dust, although the patient scarcely allowed that it occurred, so very trivial was it. There was some emaciation. On auscultation, cavernous respiration, with gurgling, at lower half of right lung. There was less sound, generally, in this lung than in the other, but no marked signs at the top indicating tubercles. On the contrary, all the chief physical phenomena were at the lower parts. Three days after first auscultation, a second examination discovered all the above signs gone, or nearly so: patient improved. In a week, the bloody sputa, a few of which were perceptible on his entrance at the hospital, had disappeared. Five days ago, he suddenly again raised about ℥xvi of blood, which was apparently purely arterial; it was raised in the night, without previous warning, and had formed into a large dense coagulum (as if it had been taken from a vein in the arm), in the sputa-cup. This was noticed at the physician's visit the next morning. The physical signs above enumerated again presented themselves. Since this, they have subsided again.

Dr. B. remarked that this case is to him unique in its characteristics; he said it might suggest the idea of pulmonary apoplexy; there were doubtless condensation and congestion of the pulmonary tissue, which were relieved by the hemorrhages—probably no cavity.

Dr. Bigelow, sr., said, in reply to a question from Dr. Bowditch, that he did not remember precisely such a case; he had often doubted whether pectoriloquy could be said to exist, properly, unless gurgling assured us of a cavity.

Dr. Bowditch remarked, that the decision between pectoriloquy and bronchophony was not the point; but whether such a case, with the peculiar attacks of hæmoptysis, and the sudden changes in the condensation of the lung, according as the bleeding occurred, was not unique.

Dec. 23.—*Excessive Liquor Amnii in a case of Twin Birth. Dangerous Symptoms.* Case reported by Dr. STORER.—On the 13th ult., Dr. Storer was suddenly called to a woman in labour at her seven and a-half month of pregnancy. She had been unwell for some months, complaining of much cough and difficulty of breathing, but had consulted no physician, and, for the greater part of the time, had performed her ordinary domestic avocations. He found her sitting in her chair, suffering from a severe pain; upon its cessation, she was placed upon her bed, and examined per vaginam. Feeling, through the unbroken membranes, a hand, he immediately ruptured her bag of waters, reached a foot, turned the child, and delivered. This was readily accomplished, on account of the small size of the infant. Upon the birth of the child, the mother experienced, immediately, two or three exceedingly strong pains, in the midst of which she coughed much, and expectorated quite a quantity of frothy, bloody mucus. Upon examination, he found a second bag of waters: his patient was herself satisfied she had still a child within her. As she was suffering greatly from dyspnœa, which almost prevented her from remaining on the bed, even in a semi-recumbent position, he ruptured the membranes. An enormous quantity of liquor amnii passed off. At this moment a severe pain ensued, which continued a minute or two, during which Dr. S. thought she must die. The dyspnœa was very distressing; there was a constant disposition to throw off bloody mucus; her countenance was livid throughout; the expression frightful; about four respirations in a minute. The pulse at the wrist imperceptible. Dr. S. was about to send for his forceps, when the head was expelled—the mother being supported nearly erect, almost unconscious of her delivery. In this state, it seeming impossible that she could survive for any length of time, the immediate friends of the family were summoned to see her die. For several hours she continued in the condition just described, gasping for breath, constantly fanned to enable her to breathe at all. Her lips and nails were of a deep purple colour—her face and neck more or less livid; she was unable to speak or to swallow. She lived, however, through the night, and the next day, supported, as has been before stated, in an erect posture—procuring some sleep; and during the latter part of her time taking a small quantity of stimuli, such as brandy, &c. The second night she was able to lie down in a semi-recumbent posture. The third night she lay almost horizontally. From this time she convalesced slowly, and is at this moment in a very comfortable condition, complaining only of debility. She is hereditarily disposed to phthisis, and has dullness on percussion and deficient respiration at the top of one of the scapulæ; but she has rallied from her confinement, much to the amazement of all who were with her, not excepting her physician.

While sitting up in bed, hours after her confinement, Dr. S. could hear no respiration over the greater part of the chest; at the apices only of the lungs did any air appear to enter, and there with great difficulty.

The children, which are still alive and well, were quite small, weighing

only about five pounds each; but the quantity of liquor amnii was very great —a larger quantity than Dr. Storer remembers ever to have seen, unless there existed at the same time a diseased placenta.

Dec. 23.—*Puerperal Fever—unusual Symptoms.* By Dr. Storer.—Dr. Storer stated that, as several puerperal cases had occurred since the last meeting, he would refer to one which fell under his treatment. On the 9th instant, he was called to a lady, thirty-five years of age, in labour with her third child; she was delivered after six hours pain. The first three days she convalesced, as well as after either of her previous accouchements. On the morning of the fourth day, he learned she had had a restless night, and had had three dejections. When he saw her, she had no pain in the abdomen, and felt no uneasiness upon pressure being made there; the pulse but slightly accelerated; she complained only of *an urgent disposition to stool.* Her mother then told him that, for several weeks previous to her confinement, she had suffered from a *diarrhœa,* for which she was unwilling to take any medicine. Dr. S. ordered an opiate injection and demulcent drinks, by which she seemed relieved towards night. On the morning of the 5th day, complaining of *some pain upon pressure* over the uterus, she was leeched, and minute doses of calomel and Dover's powder were administered. She was relieved by the leeches, but her aspect was bad: the breathing was not much embarrassed; the pulse only 100, and she was not very restless. On the morning of the sixth day, the pain returned in the abdomen, accompanied with slight fullness there; a *blister* was ordered. On the 7th, pain much relieved; irritability of bowels lessened, but still *uneasiness* continued; she seemed much exhausted and depressed; continued medicine. On the 8th, *milk and lochia* suppressed for the first time; great prostration; abdomen more full, but still slight complaint upon pressure. On the 9th day after delivery, *died.* Was *conscious* throughout the whole of her sickness, and for several days continued to apply her child to the breast.

Dr. Chas. E. Ware remarked that he also had had a fatal case of puerperal fever. He was called to Mrs. M. at 5 o'clock A. M., Dec. 9th, in labour. She had had slight pains all night. The waters had broken, and everything appeared right. She continued in about the same state till noon, making very slow progress; at 6 P. M., the pains diminishing, and the child having made no progress for several hours, she being a feeble and nervous woman, the forceps were applied; and one child, a male, delivered with very little difficulty. It was then found that there was another child, in the membranes, presenting by the arm. It was turned, and the feet brought down. At the head, it was arrested, the cord pulsating, and no pains. It remained about twenty minutes in this state before it could be extricated, and cried in the vagina at least ten minutes before it was born. It was still-born, but was resuscitated, and both children are now doing well.

The mother was much exhausted, but was got comfortably to bed. The next morning her pulse was 128, and she complained of a little sore throat. From this time her pulse continued to fall, till the 13th, when she had her milk, and everything appeared to be doing well. Her pulse was 100. That day she took oil, which operated well. In the evening, however, she had chills, a great sense of fatigue, and passed a restless night. The next morning she had a pulse of 120. There was no unusual soreness, nor fullness about the abdomen. Her respiration was natural, with a full expansion of the abdomen. Her milk and lochia were abundant and natural. She only complained of her throat, about which there were no apparent signs of trouble. Her tongue was dry, and there was sordes on the teeth. The next morning there was delirium, which continued more or less active until her death. Her pulse continued to increase in frequency, and was so fluctuating in character as to be with difficulty counted during the last two days of her life. While her consciousness continued, she only complained of her sore throat, and a sinking sensation at the epigastrium; never of the abdomen, which did not present any evidence of peritonitis or phlebitis, in the symptoms. Her milk left her. Her lochia continued to the last. She died the evening of Dec. 18th. There was nothing in her symptoms to call for or admit of depletion. She was treated with quinine and stimulants.

Two of her children, who were in the house, had sore throat at the time that she was confined. Her husband had one, commencing on the day that his wife died. They were all of an exceedingly mild character, and presented nothing malignant. Dr. Ware attended another woman in child-bed the night that Mrs. M. was confined, and another the next day, both before Mrs. M. presented any untoward symptoms. Both patients did very well.

Jan. 13.—*Imperforate Rectum; laceration of the Intestine.* Case reported by Dr. B. E. Cotting.—The child, a female, was born on the afternoon of the 8th inst.; on the 10th, at 3 P. M., Dr. C. saw it in consultation, and found it almost pulseless; abdomen tender and tympanitic; passed the little finger half an inch or more up the intestine, and was met by a firm, fleshy resistance; no operation was attempted, and the child died in about four hours. On dissection, the abdomen was found distended with gas; and in the cavity was a large quantity of meconium, with here and there some redness, and a small patch of lymph upon the peritoneal surface. As usual in such cases, there is a small portion of intestine below, with about the same extent of imperforation. Just above this last, there are seen two longitudinal rents, an inch or more in length, which extend through the outer coats, and one through the entire parietes. The intestine, which was exhibited, has not now the appearance of having been much distended; and neither does it show any signs of inflammation, externally or internally.

Jan. 13.—Dr. Cotting also presented a calculus that had formed in the neighbourhood of a large abscess about the tonsil, inflammation having commenced last November. The patient is a man forty-five years of age. The calculus, which has been only recently discharged, is about as large as the tip of the little finger, and white, somewhat crumbling, and of an earthy appearance, but laminated towards the centre.

Jan. 13, 1851.—*Polypus of the Ear.* By Dr. Hooper.—The patient from whom this was secured, a man thirty-five years old, had a similar operation in April last; since that time, the present polypus has grown. It is a fibrous polypus of extraordinary size. The chief symptoms attending it were otorrhœa, and an inconvenience in moving the jaw. A slight hemorrhage followed its removal, soon ceasing on syringing the ear with cold water.

Jan. 27*th.—Malignant Tumour arising from Periosteum of left Tibia—Removal of the Limb.* Case reported by Dr. J. M. Warren.—The patient was a mechanic, fifty-two years of age; his general health has always been good; knew of no hereditary tendency to carcinomatous disease; exhibited none of the appearances of the diathesis.

About twenty-three years ago, he struck the hook of a heavy ox-chain against anterior aspect of left tibia at about its middle. Within twenty-four hours after the injury, noticed a "swelling as large as a kernel of corn," which he was confident was not like the swelling of an ordinary bruise, being much harder, not discoloured, and excessively tender. This gradually increased, until, in three or four weeks, it was as large as a pullet's egg. It so continued for twenty years; never painful, but always excessively tender.

Three years and a half ago, while driving a nail, the hammer glanced and struck partly on the skin bone and partly on the tumour. The pain from the blow was excruciating, continuing for twenty-four hours, when it gradually subsided and he went about his business, but was subject to twinges of pain at intervals of a few hours for two or three months, the average amount being greater at night.

Two or three months after the blow, he noticed a gradual enlargement of the tumour, which, in 18 months, had grown to the size of a large orange. The increase of pain was in direct ratio to the growth. At this time, the whole of his limb below the tumour was swollen and œdematous, the tumour itself very red—at apex, a bright crimson, the integument covering it very thin and tense.

From a slight accidental abrasion, granulations now shot out, bleeding freely at the slightest touch. About a week after, the tumour was removed by a surgeon, and portions of the tibia, to which it proved to be adherent, chipped off. The wound healed in three months, and remained sound for a year. Then, a little to the outside of the cicatrix, a swelling was noticed of the diameter of a penny. This followed precisely the same course as the preceding tumour,

altogether resembling it, except in size and situation, being a little more on the outer aspect of the leg, and a little larger.

The appearance of the tumour was as follows just previous to removal of limb. Six inches above malleolus, on outer aspect of left tibia and apparently adherent to it, was a lobulated tumour, eight and three-quarters inches in circumference, two inches in height. It was somewhat constricted at its base by the integument through which it had extruded, as if forced up from beneath. Just to inside of its base was a hard tumour, in size and shape like a large almond, which he said very much resembled the original tumour of twenty-three years ago. This had been about six months in acquiring its present size.

Ten days ago, apex of large tumour became sloughy, and so continued. Integument at base was reddened, and the tenderness was greatest at that spot. When the limb was at rest, the pain was slight; after exercise, much increased. Patient kept about his business till within ten days.

No other tumour observed externally; none felt through abdominal parietes; no apparent enlargement of inguinal glands.

Dr. Warren removed the limb, above the knee-joint, by the circular method. On sawing the tibia longitudinally, after removal, it was found that the original tumour was between the periosteum and the bone. Its size was about that of a walnut; it was quite firm, white and fibrous in appearance; springing from one side of it was the large fungous growth described above.

Jan. 27.—*Tumour of Right Arm, requiring amputation at the Shoulder-joint.*—Dr. J. Mason Warren exhibited a tumour apparently of a malignant nature, and stated the case, which was as follows. The patient was a tall, thin man, thirty years of age. He had always been healthy until last April, when he had a discharge of blood from the kidneys, unattended with pain, which lasted him for one or two weeks. In June, the present tumour appeared as a small hard lump under the skin of the arm near the insertion of the deltoid muscle. This had gradually increased until it nearly encircled the arm, extending under, and raising up, the brachial arteries and nerves. The motions of the arm were not much affected by its pressure, but latterly it had taken on a more rapid increase, and the active portion of it was somewhat painful. Dr. Tewksbury, of Portland, considered the case a critical one, demanding the removal of the tumour or the arm, and directed the patient to Dr. W. After a very careful examination of the tumour, which was quite firm and movable, it was agreed that the patient should be put under the influence of ether, the tumour cut into, and if found to possess the character of a malignant growth, that the arm should be removed at the shoulder-joint.

The operation was done on the 15th February, and on the tumour being incised, all the gentlemen present, viz: Dr. Ray, of Kentucky, Drs. Thorndike, Minot, Williams, Foltz, Brown, Stone, and Gore, coincided with Dr. W. in regard to its having the appearance of a carcinomatous growth. The bleeding

from it, which was quite free, was therefore stanched with a bit of sponge, and the removal of the arm proceeded with. This was done by an anterior and a posterior flap, the former being made from without inwards, by means of a scalpel, in order to have a more regular wound, and the better to avoid impinging on the tumour. The subclavian artery, as it passes over the first rib, was so effectually compressed by Dr. Williams, that scarcely any blood was lost.

The patient is now doing well. On the 20th January, he had a discharge of bloody urine, which he attributed to the confined situation in which he had remained, on his back, and which had produced a severe pain in the loins. He seemed to attach but little importance to it, and in fact it soon ceased. Dr. Thorndike, who has charge of him, reports that he is rapidly recovering.

The tumour, on dissection, presented a lardaceous appearance, and, under the microscope, showed much fibrous tissue, in which, after much investigation, cancer cells were distinguished.

January 27, 1851.—*Acephalous Female Fœtus.* Presented by Dr. W. E. Townsend.—The chief peculiarity connected with this case was the difficulty of determining the pregnancy of the mother. She has had three children before this, and reported that she had no one symptom of pregnancy that she had before experienced, except the non-appearance of the catamenia after the death of her last infant, and, as she had been before irregular, she did not attach much importance to that symptom.

During the whole period of gestation, she felt, at times, severe pain in her sides and back, had much suffering accompanying her discharges, and during the last three months obtained but little respite from pain day or night. No placental murmur could be heard, nor could the pulsations of the fœtal heart be detected, and it was only after a careful vaginal examination that her condition could, with certainty, be discovered. She had no enlargement of the waist, the whole of the increase of size being below that part, and this varied greatly from day to day. At delivery, about two gallons of liquor amnii escaped; the fœtus presented by the feet, and was still-born. The spine is bifid as far as the lumbar vertebræ, and the whole bears a very striking resemblance to a large bull-frog.

Jan. 27.—*Microscopical Anatomy.* Dr. O. W. Holmes.—Dr. Holmes reminded the Society that he had, in the autumn of 1847, described and shown, at a meeting of the Society, certain new and hitherto undescribed bodies discovered by him in the cancellated structure of human bones. Several drawings of them were taken at the same time by Mr. McIlvaine of Philadelphia, then in Boston, which have been exhibited to the class during every course of lectures since that time.

These bodies have been lately described by M. Robin under the name of *medullary cells.* (See *Gaz. Méd.* for Dec. 22d, 1849, and *Am. Journal*

of the Medical Sciences for July, 1850.) He speaks of them as spherical or slightly polyhedric, transparent, with defined borders, and generally including a spherical, regular, transparent, sharply defined nucleus, with molecular granules between it and the cell wall. They are most abundant, he has remarked, in young subjects, and towards the end of the period of gestation.

There can be no doubt of the identity of these cells with those described and exhibited here two years previously to his publication. Several points may be added to his description. The nucleus, as Dr. Holmes has seen it, is of a remarkable yellow colour. In some instances he has found it containing a distinct nucleolus, in others there were two nuclei perfectly distinct, and in one cell lately noticed, there appeared to be four. The cells seem to be situated on the exterior of the bone, as they may sometimes be removed by repeated brushing with a camel's hair pencil. In size and general appearance, they are not unlike dried blood-corpuscles. They resist strong acetic acid and boiling water.

Dr. Holmes exhibited specimens of these bone-cells, which he proposed to investigate more completely hereafter.

He also showed the effect of polarized light in displaying the lamellated structure of bone, a circumstance not referred to in the works he has at hand, but of which he has for several years been in the habit of availing himself in his microscopic demonstrations.

Another point to which he called the attention of the Society, as illustrated in a specimen before them, was the *interrupted* form of the dentine tube, a form not shown by Mr. Tomes among the varieties he figures. The appearance is like that of a thermometer tube in which the mercury has become broken up into longer or shorter columns, or like what is often seen in the centre of a hair. The line of the tube shows an alternation of dark and light spaces, often very regular in size, the dark portions sometimes little more than mere dots, sometimes of considerable length. It can scarcely be doubted that this appearance is owing to the presence of an opaque deposit, natural or accidental, in a transparent tube, which it has imperfectly filled, in the same way that an unsuccessful injection partially fills an artery, and it may be considered another evidence of the tubular character of the dentine, if such were wanting.

ART. VI.—*Remarkable Obstetrical Cases.* By WILLIAM P. JOHNSTON, M. D., Professor of Obstetrics, &c., in the National Medical College, Washington, D. C. (With a wood-cut.)

CASE I. *A Male Infant weighing twenty pounds, delivered November 26th,* 1848.—Mrs. L., aged, at the date of her last confinement, thirty-eight years, was married at twenty, and has given birth to thirteen children at term. She is

above the average height of women; of large frame, corpulent, weighing probably two hundred pounds or more. I saw her for the first time during her last pregnancy, on the 9th of November, 1848: I found her suffering very much. Her abdomen was immensely distended, and tender to the touch. The lower limbs were exceedingly œdematous in their entire length. She complained of great stiffness about the hip-joints and knees, which, together with the weight of the abdomen, rendered locomotion very difficult. When lying in bed, it was impossible for her to move her lower limbs without assistance. Her breasts had not enlarged; her pulse was full and strong; tongue clean, red, and tender; acid eructations frequent. She ate but little, and without appetite.

A pint or more of blood was taken from the arm. She was ordered to take lime-water and milk, instead of tea and coffee. Diet to be very light, with very little animal food.

She was better after the bleeding, and she thought that the pain, stiffness, and œdema were somewhat relieved.

On Sunday, November 26th, 1848, at 5½ o'clock A. M., while standing, and without previous pain, the membranes gave way suddenly, with a report sufficiently loud to cause her husband to start from his sleep: the quantity of liquor amnii discharged was said to have been immense.

On my arrival, I found the head of the infant above the superior strait: the pains were feeble, and the os uteri dilated to the size of half a dollar; as the pains increased the os uteri dilated, and the head advanced very gradually in the first presentation. In the cavity of the pelvis, its progress was more rapid; but at the inferior strait there was some delay, notwithstanding the complete relaxation of the soft parts, and the strong bearing-down pains after the head had, with some difficulty, escaped: the infant, which was still alive, made several efforts to cry.

The greatest difficulty was now experienced, for the shoulders were so broad that it was impossible for delivery to be completed without causing one of them to descend at a time. Efforts were made to complete the rotation of the shoulders, and a finger was, with much difficulty, introduced into the left axilla, for which the blunt hook was soon substituted, and traction made in aid of the pains, which were still powerful.

A half hour, at least, was consumed before I succeeded in delivering the left arm. After some further delay, the right arm, which was under the pubis, was brought down.

Some difficulty was also experienced with the breech, but it was finally delivered in about three-quarters of an hour after the head. Unavailing efforts were made to resuscitate the child, which had died from the delay and pressure upon the cord.

The uterus contracted well, and in a short time the placenta was found lying loose in the vagina, and removed. There was but slight hemorrhage. The duration of labour was about eight hours.

In the evening I found her comfortable; after-pains not severe; pulse a little accelerated. There was a constant stillicidium of urine.

Nov. 27.—No fever; pulse 72; urine continues to be discharged in great abundance, and the œdema is rapidly disappearing. Lochia very small in quantity.

From this time convalescence advanced without interruption. There was no milk secreted.

Weight and dimensions of Mrs. L.'s infant, delivered Nov. 26, 1848:—

Weight of infant (male)	20	lbs. exactly.
Length	25¼	inches.
Breadth across the shoulders	8½	"
" " hips	7⅜	"
Circumference of thorax, under arms	16¼	"
" around hips	16¼	"
Head.		
Occipito-mental diameter	6¾	"
" frontal "	5¾	"
Bi-parietal	4¾	"
Horizontal circumference of head	15¾	"
Circumference of head, around chin and middle anterior fontanelle	16½	"
Placenta weighed	3	lbs.

Cord was of an extraordinary thickness.

Note.—It may be well to mention that the instrument used in weighing the infant was tested, at my request, by Messrs. Campbell & Coyle, hardware merchants, and pronounced correct.

Case II. *Separation of the entire Circumference of the Vaginal portion of the Cervix Uteri, from pressure of the Child's Head during Labour.*—Mrs. D., from Ireland, æt. from thirty to thirty-five, of a strong muscular frame and sanguine temperament, was taken in labour with her first child on the 4th of November, 1845, about 12 M.

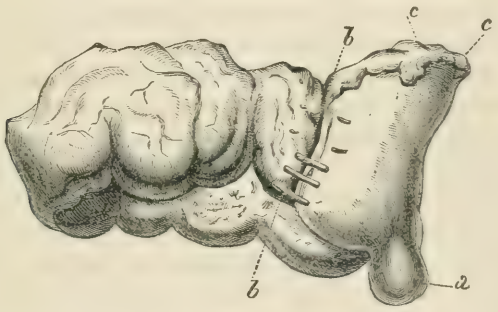
The os uteri, when first examined, was found dilated to the size of half a dollar, its edges were thin and hard, membranes somewhat protruding and tense. The anterior lip of the os presented a remarkable prolongation of an inch apparently.

The membranes soon ruptured, and the pains became more energetic. The os uteri and the vagina were nearly free from secretion. The pains became very strong and bearing down. There was frequent vomiting and insatiable thirst.

On the 5th, at 6 A. M. Found that the head of the child had descended, carrying before it the os uteri. The prolongation of the anterior lip was engorged, an inch in thickness, and presented in advance of the vestibulum.

Posteriorly the os uteri was thin, hard, and very rigid. Pulse full and strong; face flushed, and skin hot; vomiting persisting. She was bled from twenty to twenty-four ounces. In the course of the morning, a pint and a half of urine was drawn from the bladder by the aid of a gum-elastic catheter. The bleeding was repeated to the extent of a pint, and the extract of belladonna was applied to the os uteri.

At 10½ P. M., nearly thirty-five hours from the commencement of active labour, the pains having become still more energetic, the head was suddenly delivered, and upon examination it was found that a portion of the cervix had preceded it. Supposing at the moment that the laceration was only partial, I cut across that portion which presented with a pair of scissors; but in a moment after, the body of the child was delivered, when we ascertained that the separation had been nearly complete, the portion attached, and which had to be cut with the scissors, being only about half an inch long. The width of the separated cervix varied from an inch to an inch and a half. See figure.



Neck of Uterus separated during Labour (two thirds natural size). [Drawn from a specimen preserved in spirit. Cabinet of Prof. Wm. P. Johnston, M. D., Washington, April 2d, 1848.] *a.* Prolongation of anterior lip. *b.* Stitches used to unite the parts severed by the scissors. *c, c.* Portion which remained attached to the womb after delivery of the child, and which had to be separated by the scissors.

The delivery of the child was followed by a gush of very offensive and partially coagulated blood. The placenta had separated before delivery, and was removed. The child was, of course, still-born.

On the 7th, the pulse was 84, skin pleasant, abdomen but little painful to the touch.

In the evening, the pulse rose to 102, and the abdomen became more tender. Ordered calomel gr. v, and Dover's powder gr. x; hop fomentations and an enema.

On the 8th, she was relieved, and convalescence fairly commenced. The lochia were natural.

In a few days, I ascertained that she had imprudently removed to another

house, feeling quite well. The catamenia soon returned, and she experienced no inconvenience from the accident she had sustained.

On the 10th of November, 1846, I went to inquire after the patient, whose case I have given above, when I found her with an infant in her arms of which she had been delivered about two weeks before. Her labour came on without any premonition, and in ten minutes, and before a messenger could be despatched for a physician, the child was delivered.

Her husband died before the birth of the second child, so that she has had no more, but she has enjoyed perfect health.

ART. VII.—*Hot Water in Sprains.* By SAMUEL JACKSON, M.D., formerly of Northumberland.

THE immediate application of cold water in sprains is strongly recommended by M. Baudens, in a paper quoted at p. 235 of the preceding No. of this Journal. As my practice, at least for the last thirty-four years, has been the very opposite of this, and has yet led to equally desirable results, I beg leave to relate it on the present favourable occasion.

I was riding past the house of one of my patients thirty-four years ago and heard the screams of anguish: a woman had just sprained her ankle and was then suffering intensely. I ordered the foot to be put into water as hot as she could bear it and to be retained there until I should return—hot water to be added as the first became cool. In about an hour, I found that the pain had diminished almost from the very first minute, and that it was then entirely gone. She was put to bed with the foot greatly elevated, and after some hours, though there was no pain, towels dipped in cold water were freely applied and continued for several days. She was then perfectly well nor did she ever again suffer from that sprain.

Another strong case within my clear recollection is the following. A man sprained his ankle and suffered such severity of pain as to make him cry out most lustily. I was present in a few minutes and put his foot into hot water, immediately bleeding him largely from the arm as he sat in his chair bathing his foot. The pain became rapidly milder and I went into the next room to drink some tea. Looking over my shoulder after a few minutes, I saw his friends employed in fanning him and sprinkling his face with cold water. I ran to him, when to my horror, he was, as to human eyes, a mere corpse. I instantly tilted his chair, laying him flat on his back and ordered them to elevate his legs. Cold sprinkling and spirits of ammonia now most fortunately in my pocket, were most diligently used, but it was an alarming time before he was restored. He was now put to bed entirely free from pain and the

next day he pursued his journey in the stage without any inconvenience, having a flannel bandage applied.

This man told me he had no idiosyncrasy with respect to losing blood; he was large, vigorous and healthy; hence the bleeding did not produce this alarming crisis. It was in a great measure the flaccidity of body and mind effected by a sudden transition from extreme suffering to perfect ease; though it must be apparent that the bleeding and bathing worked together so powerfully as to require more careful watching in any future case.

I once suffered a violent contusion of my elbow followed by intense pain: the arm was immediately put into a tub of hot water when it soon became entirely easy, requiring nothing further except rest. I have treated many other sprains and contusions in this way and I do not recollect a single case wherein the hot water failed of giving surprising relief.

I had been prepared for trying this method by reflections on the great comfort of warm bathing in many cases of conjunctivitis, before any considerable *error loci* had yet been formed; and on the fact, that in general relaxation of the system, there is less pain from parturition or any other violence.

How long that state of the part which is benefited by hot water, may generally continue after the accident, can hardly be defined. I have no recollection of using this remedy after a lapse of two hours, but I cannot be prepared of course to define the limits. If there has been time for inflammation to form, heat is inadmissible on my principle. Sometimes a tumour will instantly rise, but this being without inflammation, there can be no objection to the hot water.

It is very desirable to ascertain the best methods of refrigeration. M. Baudens keeps the foot night and day in a tub of cold water—a very inappropriate and inconvenient practice, if I am not greatly mistaken, for it prevents the proper position of the limb, which ought to be much elevated and evenly so from the acetabulum to the foot. Towels dipped in ice water and spread over the limb and bladders of snow or of pounded ice so placed that their weight may be supported by the pillows, are very conveniently applied. Ice or snow is particularly useful through the night when nurses and patients are sleepy and heat is sure to accumulate. A certain medium however must be observed with respect to the degree of cold, for it may easily be overdone unless the heat be great.

Suppose then a violent sprain has been relieved of all pain by hot water, let no one look upon the danger as past. The patient ought to be placed in bed with his foot greatly elevated, and after a few hours, cold ought to be applied even if the part is entirely easy. Inflammation may form, let us then prevent what every one knows is hard to cure in such parts. I have often seen lead water used and B. Bell has confidence in this and natural mineral waters, but truly I cannot believe they have any superiority over the pure fluid.

Low diet from the very first must be used in every case and purging too

when the system will bear it; but if the patient is robust, he should lose blood from the arm. So much for the prevention of inflammation. I should not say a word about its cure had not M. Baudens advanced something bordering on novelty. He seems to have a horror of leeches because they may attract blood to the part. Now if the general arterial action has been lowered and the leg kept elevated, this horror need not be entertained. This we think would be the decision of a great majority of the profession in the present case. If I were called to a sprained ankle already in a state of severe inflammation I should certainly, after bleeding from the arm if necessary, apply an abundance of leeches and follow them up by cold, the limb being greatly elevated. B. Bell says, "No remedies I have ever employed answer so well as local bleeding:" and in the same page he further says, "When the injury has been severe we are obliged to apply leeches once and again. They require indeed to be repeated from time to time as long as any serious degree of pain continues."

After an indefinite time when all tendency to active spreading inflammation has been subdued and the little that is left is very feeble or confined to a small space, a very active large blister will generally absorb and carry it forthwith out of the body, but this is a perilous experiment and may do much harm if it do not fulfil our intention of extinguishing at once the whole disease, or of subduing it so far as to prevent reaction and thus to favour the operation of a second blistering. Whenever it has been determined to use this remedy, the part ought to be rubbed for fifteen minutes with *decoct. canthar. ex terebinth.* and an active plaster applied, so as to draw an effectual blister in the shortest time possible. The quick drawing of the blister is a point of the first importance in cases wherein you hope to absorb and carry off the whole disease. A slow blister is worse than none; it is sure to irritate and increase the disease as sinapisms are known to do in similar cases. You are taken with pleurisy or peritonitis—some physicians would apply mustard with the hope of discussing a disease that is yet mild; but *væ vobis*, you must lose more blood on account of the mustard and resort to a blister in the end. The best dressing by far for the first few days, is plantain or cabbage leaves; but if the blister promise to run freely and not inflame, it may be soon dressed with mezereon or savin cerate, and if a copious discharge of pus be obtained, the disease will rapidly pass away. I can never forget the delighted countenance and applauding language of an old physician to whom I showed in my first year's practice, an ankle in this very condition. He had never known this use of savin, but from that day he used it freely and praised it highly. I had learned it from Crowther's work on white swellings.

Beware of warm poultices in the dressing of these blisters, for, as M. Baudens rightly says, "they favour in place of opposing the afflux of fluids to the part," and speaking of the long application of warm cataplasms, he says, "The long maceration the joint has been submitted to, deprives it of its elas-

ticity, gives rise to a pasty engorgement and predisposes to the formation of white swelling." If it is determined not to use savin, the blister should be healed by the mildest dressings, so that another may be soon drawn; thus the blistering may be conducted without any injurious irritation and made to absorb gradually and to carry off gently all the remaining inflammation. Dr. Rush used to talk and lecture much on his blistering point, and truly no idea or language can be more appropriate. The inflammation must be brought down to a low grade of action, or to a small periphery, so that a suitable blister will extinguish it at once, or so greatly diminish it that one or more subsequent blisters may be drawn with safety and success.

Of so much importance is it to guard against the irritation of blisters, that when I have applied them in the evening for critical diseases admitting of no delay, I have risen from my bed to bleed the patient if necessary at the time the plaster might begin to stimulate. When practicing in Northumberland, I have thus gone from one mile to four between midnight and morning to subdue the possible increase of fever either by the lancet or by additional doses of tartar emetic. By this means the evils of blistering may often be prevented; but as Hippocrates says, "the opportunity is fleeting:" if you wait till morning the pulse may be higher than it was in the evening and of course the blister has done much harm and no good. Sir John Pringle, in that early dawn of therapeutics, was better acquainted with this principle than many later authors in more enlightened times. *See* Part III. ch. ii. In the treatment of pleurisy when the bleeder was not present, he put on a blister and "was satisfied if the vein was opened before the flies had time to stimulate." I must observe however that his principle of practice was more commendable than the practice itself. More mischief can hardly be done by any remedy than by the drawing of a blister before the inflammation has been reduced to the blistering point. In Sir John's practice, the pain may have been scattered, but the inflammatory state remained and bleedings were then required which ought to have preceded the blister. It is very possible that when bleeding is inadmissible, nauseating doses of tart. emet. might be used to relax the system under the stimulation of a blister.

We have already entered our caveat against warm poultices in the dressing of blisters for sprains, and have approved M. Baudens' doctrine with respect to them; and lest any one should retort that our hot water may have the same bad effect, we must remind him, that we explode warmth after inflammation is formed. You may bathe a healthy limb in hot water for twenty-four hours and no engorgement will follow. I have bathed a great many sprained joints in the hottest water that could be borne without any of this evil. It is pain and inflammation that induce this engorgement, and these being both prevented by the hot bathing, this dreaded evil is prevented of course. But let this engorgement accrue and it will be greatly increased by much heat in any form. Yet there may be old cases in which hot water or steam may appear to revivify the torpid parts and render them sensible to

curative means. But suppose you are called to an old case of this leucophlegmatic torpidity, is there a better remedy than frequent blistering that discharges freely? B. Bell recommends the pouring of warm bath or Buxton water on these engorged and torpid joints, but there is far more vivacity in the operation of cantharides, and the discharge not only carries off the evil stimulation, but it empties the vessels and promotes absorption.

Salivation is a last resort in certain protracted cases of sprains. I was called to a case wherein the metatarsal ligaments had been sprained twelve months before and the patient was now unable to walk on that limb. Rest, elevation of the leg, low diet, frequent cupping, and blistering were steadily pursued for nine months with much advantage; but there remained a painful state of the parts that prevented all use of them, and this without any evident swelling. Having reflected on the all-searching influence of mercury when parts supplied with infinitesimal vessels are inflamed as the iris, ligaments, and serous membranes, I determined to try its effects on the inflamed metatarsus. Calomel with blue pill was given and no sooner was the mouth sore than my afflicted patient felt with joy that his foot was greatly relieved. The change for the better was instantaneous and permanent. He was severely salivated but without any detriment; and I am glad to say that mercury in my hands has not since that time, thirty-one years ago, transcended its just operation in a single case, and that I consider it as an invaluable remedy not difficult to manage. It will cure chronic rheumatism, why not therefore a chronic sprain? But as I am not writing a treatise on sprains, I shall now return to my subject.

In nearly all cases of external violence which do not implicate any of the viscera, the immediate use of hot water is, as I sincerely believe, the best as it is the surest cure and preventive of pain. If you are about to have a tooth extracted, hold hot water in your mouth both before and after the operation: if you must have a felon lanced, hold the hand in hot water for a long time both before and after the cutting. My first case of what is vulgarly called "inverted toe nail" occurred to me after the patient had thoroughly relaxed the part by warm poulticing for many days, and I did not proceed to the operation of splitting the nail and eradicating the offending portion, till he had bathed his foot a long time in hot water. I had been taught in Dorsey's Surgery that it was a most painful operation and I was therefore surprised, notwithstanding my hopes from the relaxation, to find the young man making very little complaint. I have several times performed this operation and owing as I believe to the hot bathing, I have not found it severe in a single case.

Now if I am not mistaken some reader will here exclaim, that even in inflammation, warm water agrees with some persons and cold with others. This fact however, I learned when a student from S. Cooper's prize essay on "Diseases of the Joints:" but however true this may be, I have not found

a single case of bruise or strain in which hot water, when used in time, was not a great present comfort and permanent benefit.

When can I use the limb, is the continued cry of the patient and the continual anxiety of the harassed doctor. Some men have been known to walk off the inflammation as others have been known to walk off the gout, but this is a very dangerous experiment. I once sprained my metatarsus, but as the pain was not intolerable, I rode abroad without any application; on my return, I went to bed with the remittent fever and the pain was soon gone and forgotten. When I came to use the limb after two weeks, it became painful; but as the bilious fever prevailed greatly, I had no time to think of self and nothing was done unless some rubbing with liniment. When the cold weather set in, the pain subsided gradually; but the warm weather of spring brought it back with distressing debility in the part. Thus going in the fall and coming in the summer, this infirmity continued to trouble me for four years. My limb was weak and painful every summer but not so bad as to send me to bed for a cure. I have seen many people triumph over the poor doctor by limping over the earth in great pain till nature cured the disease; but such wayward spirits always pay dearly for their folly, and they are sometimes finally brought to a bed of repentance.

ART. VIII.—*Report on Idiotic Crania, Idiocy, and Cretinism.* By SAMUEL KNEELAND, JR., M. D., Boston. Read before the Boston Society for Medical Improvement, Jan. 13, 1851.

BEFORE examining minutely the subject of idiocy, it is difficult to understand the extreme differences and inconsistencies of authors who have made it a special study, and the almost impossibility of arriving at any conclusions on the subject. The divisions and subdivisions of the various forms of idiocy are innumerable; varying according to each author's appreciation of the mental, moral, and physical phenomena presented. An enumeration, even, of the different systems would only confuse and perplex. A simple division may therefore be adopted, which, if inadmissible as a strictly scientific and accurate system, will suggest the most important considerations connected with idiocy.

Without going into particulars, we notice at once a great division of idiots into idiots from birth, and idiots from various causes subsequent to birth In the first, or *congenital* idiocy, there is an arrest of cerebral development in the fœtus, indicated by a too small brain and by the external development

and form of the anterior portions of the cranium; in the second, or acquired, *secondary* idiocy, the diminution or abolition of the mental powers depends on disorganization or disease in a previously normal and healthy brain, and may or may not be accompanied with change in the size and form of the cranium; this disease may be hydrocephalus, scrofulous hypertrophy, exhaustion from venereal excesses, hard study, &c., and various mechanical injuries. To the first class, we restrict the name of *idiots*, or what are expressed in the phrase "natural fools." To the second class, wherever idiocy is secondary, may be given, for want of a better, the name "*cretin*"—a term erroneously confined by many to a few miserable creatures in the Alpine and other mountain valleys. "Among their number, may be ranked" (in the words of Dr. Buckminster Brown) "the numerous individuals who are to be found scattered over every country, and who, under various names, such as innocents, simpletons, or idiots, are to be met with in the valleys of Vermont, New Hampshire, or Scotland, as well as Switzerland." Among the great class of cretins, we perceive also a natural division, according to the nature of the predisposing causes, into two orders: 1st. *Cretins*, or "fools," properly so called, in whom, while the brain is healthy at birth, there is some hereditary disease, as scrofula, syphilis, or other cause of weakness, which predisposes to idiocy during childhood, and which is frequently followed by it when external circumstances favor its development; this would include "cretins" from endemic causes in the valleys of mountainous districts, from hydrocephalus, or other chronic cerebral affections. 2d. Persons often seen in insane asylums, in whom the understanding is completely lost, without passing through insanity; whose minds were once strong, but have been destroyed by various excesses; to use an expression in Dr. Howe's Report, they are "demented."

Dr. Brown gives the following distinction between idiocy and cretinism: "In the latter, it is disease in the framework, it is the external avenues which are closed; in the former (idiocy), it is almost unchangeable mental conformation. Or, more properly speaking, in the latter (cretinism) it is an altered condition of the nerves, sensitive and motor, and of their peripheral ramifications; in the former (idiocy), it is to the great nervous centre alone that the evil is to be traced." He thus makes the pathological condition the element of difference; while we consider rather the nature of the causes as constituting the difference. These causes, congenital or secondary, may, we think, produce idiocy or cretinism, without reference to the pathological seat; in other words, that, though in idiocy the evil is seated in the great nervous centre (the brain), in cretinism this same nervous centre may be equally affected. It would seem, also, that the distinction by the causes offers better indications for prognosis and treatment than any difference in the pathological condition; as in the congenital affection, whether seated in the brain or in the nerves and framework, the prognosis would be unfavourable, and treatment probably useless; while in the secondary affection, where the cause is more generally appreciable, treatment will be more likely to be of advantage.

It is not easy to say much on the subject of idiocy without entering the domain of phrenology. However much we may affect to ridicule the idea that small heads are absolute indications of inferior intellect, we cannot deny a connection between the *relative* size of certain parts of the brain and the *degree* of manifestation of the intellectual, moral, and animal sentiments. In idiots, the forehead is unusually low, and the intellect proportionably dull, corresponding to the arrest of development of the *anterior* cerebral lobes.—In idiocy, there is no one peculiar form to the exclusion of others; there is every variety of intellectual and moral inferiority, which phrenology traces to a corresponding deficiency of brain. At any rate, Gall, Combe, and Spurzheim have added a great deal to our knowledge of mental affections, their causes, symptoms, pathology, and treatment.

There can be no doubt that deficient cerebral development is a cause of idiocy, independent of any actual disease. Numerous examples are given by authors of full-grown idiots with brains no larger than those of infants, with no other mark of disease about them. The predisposing cause must act during gestation—idiocy may be hereditary; children of besotted parents are very apt to be idiotic. Of this it is needless to quote examples, as the records of idiocy are full of striking proofs of this visiting on the children the sin of their parents. Various shocks to the nervous system of the mother have been known to cause idiocy: thus, Esquirol mentions that, during the exciting period of the French Revolution, many women brought forth idiotic children, who before and after that period had healthy ones. The intermarriage of near relatives is very apt to be followed by idiotic children. In 359 cases alluded to by Dr. S. G. Howe, in his State Report, 17 were *known* to be the children of parents nearly related by blood, and doubtless many more should be added. This makes (so far as such few cases go) the proportion of idiots from this cause one-eighteenth of the whole; and, considering the small ratio such marriages bear to the great mass of marriages, this proportion becomes of more importance. In this report, it is said: "Most of the parents were intemperate or scrofulous; some were both the one and the other; of course there were other causes to increase chances of infirm offspring, besides that of the intermarriage. There were born unto them 95 children, of whom 44 were idiotic, 12 others were scrofulous and puny, one was deaf, and one was a dwarf. In some cases, all the children were either idiotic or very scrofulous and puny. In one family of eight children, five were idiotic."

Idiocy (as has just been defined), being congenital, cannot be said to have any *exciting* causes, or rather these are the same as the *predisposing*. In all the forms of cretinism, in addition to the predisposing causes of idiocy acting on the mother during gestation, there are various exciting causes; as, endemic influences of mountain valleys, improper lactation, accidents of dentition, convulsions, grave diseases of infancy and childhood, falls on the head, &c., acting on a brain prone to derangement from hereditary causes of weakness.

In after life, a vicious system of education, a life of excess, may cause "dementia" in a perfectly developed brain. It has been said that continued compression of the child's head during labour may cause idiocy; and that any subsequent improper compression may have the same effect. This may be true as regards infants; but there are many facts against the latter. We know, for instance, that the artificial compression exercised by many nations (as the ancient Peruvians, the Natchez Indians, &c.), though distorting the cranium to a great degree, does not cause idiocy. The Peruvian forehead is as flat as the idiot's; but this *imitation* of nature is not followed by the natural consequence, idiocy.

According to the best authority, the number of idiots and cretins in Massachusetts must be at least 1200, in a population of one million, or about one in every 830 individuals.

There is no one peculiar form of idiotism, or cretinism. There is every variety and gradation, from the most degraded brutish idiot to the imbecile with a feeble, yet perceptible, intellect. It would be useless and tedious to give here anything like a full account of the different *symptoms*. It will be sufficient to allude to the stupid physiognomy, inability or indisposition to move, deformity, dullness or abolition of the senses, inability to articulate, involuntary discharges, insufficient and sluggish circulation, in idiots proper; and, in the various forms of cretinism (in many cases apparently synonymous with rachitis, scrofula, epilepsy, hydrocephalus), to the distorted features, convulsive movements, disgusting habits, depending on the activity of certain instincts unrestrained by moral or intellectual principles. In this class must be placed those whose idiocy depends on congenital absence of certain senses, which Broussais thought justified him in saying that persons born blind and deaf are necessarily idiots. But numerous exceptions show that the absence of these senses is not incompatible with considerable intellectual powers: the case of Laura Bridgman need only be mentioned to prove this.

Cretins and idiots usually have the animal and instinctive propensities active, even when there appears no spark of reason or human sentiment; but to these may be added various faculties, as memory, order, disposition to destroy, secrete, or steal. Some have considerable mechanical talent, *e. g.*, the cretins employed at Geneva in making parts of watches; some are gentle and affectionate, others the opposite; some have the organic functions perfect, others not. Dr. Rush says, "I once saw a man who discovered no one mark of reason, and yet possessed the moral sense and faculty in so high a degree that he spent his whole life in acts of benevolence."

This will suffice for the symptoms proper of idiocy and cretinism; but a curious fact may be here introduced in regard to the diseases of this class of persons, viz., that they are accompanied with very little reaction, and are very difficult to diagnosticate from the absence of the classical symptoms: in inflammation of the lungs, for instance, the circulation and respiration are very

little, if at all, accelerated; rusty sputa either do not exist, or they are swallowed as by children; all their diseases seem to take on the chronic and latent form; acute affections and cerebral inflammations rarely terminate their lives, and the gravest accidents and dangerous wounds are borne without any great constitutional disturbance.

It is the opinion of many authors that cretinism is one of the many forms in which the scrofulous diathesis shows itself; and certainly the external signs of the so-called "lymphatic temperament," the complexion, features, proportions, &c., are strongly in favour of this view. In idiots proper, the nature of their affection must be attributed rather to an arrest of development than to any constitutional disease, though upon true idiots may be found marks of scrofula. As any well-ascertained connection between cretinism and other disease is important as regards treatment, the relation of rachitis to cretinism may be here mentioned. In the "Dictionary of Medical Sciences" of Berlin (according to Mr. Güggenbuhl's First Report, pp. 47–8) it is said that autopsies of cretins prove that their cranial bones have undergone a softening similar to that found in rachitis, and evident marks of this disease have been found in other parts of the skeleton; the symptoms from the beginning are similar, but not precisely alike, in cretinism and rachitis. Without admitting absolute identity, the authors think that the differences depend on this, "that cretinism, taking its departure from the cranium and brain, soon attacks the physical and intellectual powers; while rickets, commencing in the trunk and the extremities, may make great progress before exciting any grave trouble in the system." A careful examination made by the physicians of the Canton Vallais, in Switzerland, has shown (according to the above report) that at least one-half of the cases of cretinism there commence by the symptoms of rachitis, principally softening of the bones. According to Esquirol, and others since his time, cretinism is usually developed between the second and fifth years, and almost never after seven years of age.

The pathological anatomy of idiocy and cretinism presents very various conditions. In true congenital idiocy, we find a brain (healthy perhaps) too small for the full manifestation of the moral and intellectual faculties; there is an arrest of development of the anterior and middle portions, corresponding to the seats of these faculties as given by phrenologists.

This deficiency in the anterior region of the skull is well shown by the series of casts and crania exhibited in the following tables. Measurements have been carefully taken in three directions, which will be compared with normal heads, in order to sustain the exactness of Dr. Gall's law in reference to the dimensions of the skull necessary for the full exercise of the faculties.

TABLE I.—*Idiots.*

Sex.	Age.	1st measurement.	2d measurement.	3d measurement.	Where found.	No.
Male,	25	15 inches.	10 inches.	9 inches.	No. 407, Mass. Med. Col.	1
Female,	17	15 "	10 "	10 "	No. 406 " " "	2
"	60	18 "	11 "	10 "	No. 89 " " "	3
Male,	Adult,	18 "	10 "	10½ "	No. 89 " " "	4
"	"	18 "	11 "	11 "	No. 90 " " "	5
Female,	"	18 "	10¾ "	10½ "	No. 91 " " "	6
"	"	18¼ "	10 "	11 "	No. 92 " " "	7
"	"	17½ "	10½ "	10 "	No. 93 " " "	8
—	?	14 "	8½ "	8¾ "	No. 94 " " "	9
—	6	14 "	8¼ "	8¼ "	No. 96[a] " " "	10
—	21	14½ "	9 "	9 "	No. 96[b] " " "	11
S. Walker,	6	—	10½ "	10½ "	Dr. Howe's Report.	12
G. Rowell,	9	14 9/10 "	10⅛ "	10½ "	" " "	13
E. S. Field,	7	17 "	11¾ "	11 1/16 "	" " "	14
Charles,	16	16 "	8 "	9 "	Institution at S. Boston.	15
Rowell girl,	8	15½ "	10½ "	10½ "	" " "	16
Aztec boy,	7	12 "	7½ "	7½ "	Described by Dr. Warren,	17
Aztec girl,	5	12 "	7½ "	7½ "	p. 285 et seq. of this No.	18

The first measurement is the circumference of the cranium just above the superciliary ridges, passing through the most prominent part of the occiput; the second is from the root of the nose to the occipital protuberance, over the top of the head; the third is from one auditory meatus to the other, also over the top of the skull. Dr. Gall has laid down the rule that when the first is less than seventeen inches, and the second less than eleven inches, or even twelve, there is always greater or less stupidity; that, when the first is eleven to thirteen inches, and the second eight or nine, the intellectual faculties cannot be exercised. With reference to this point, Andral, as quoted by Dr. Combe (on Insanity, p. 264), says: "As a general rule, it may be stated, also, that, when the circumference of the head is only between twelve and fifteen inches, the mental condition can be but little above idiocy. Eighteen inches may be regarded as the circumference necessary for intelligence; at twenty, the mental faculties are still more developed; and from twenty to twenty-two inches, they attain their maximum power."

Eleven of the above eighteen idiots are doubtless adults; or, if not, it is of little consequence, as it will be seen in the next table that these measurements are less than the normal measurements of a child four years old. For the first (the circumference) the smallest is 14 inches (with the exception of the Aztec children), and the largest 18¼—all below the size necessary for much intelligence; the second varies from 8¼ to 11¾ inches; and the third from 8¼ to 11¼.

It may be well to glance here at some of the most prominent points exhibited by these casts and crania of idiots, which, to one conversant with phrenology, would suggest many very interesting questions. All show a preponderance of the animal propensities, some of one kind, some of another. Nos. 1 and 2 were noted for pride, self-esteem, and combativeness. No. 3, a

woman sixty years old, who during her youth had the cerebellum active, had sufficient locality to wander from home and find her way back again; she was very fond of colours, and submitted to be cast on receiving a gaudy-coloured shawl. Nos. 4 to 8, inclusive, were members of one family, all of whom, seven in number, were idiots; their parents were frequently in a beastly state of intoxication. Nos. 5, 6, 7, and 8, so far as the relative size of the various regions of the skull was concerned, had phrenologically good heads, but their absolute size was too small for intelligence. Nos. 9 and 10 approximate very nearly to the orang outang, as will be seen by reference to the second table. No. 10, the famous idiot of Suabia, six years old, by the flat forehead, vertex, and occiput, and prominent features, resembles much the so-called Aztec children, of whom we have given the measurements in Nos. 17 and 18. No. 11, the idiot of St. Denis, is of good shape, but of remarkable smallness, considering the subject was twenty-one years old. Nos. 13 and 16 are brother and sister, and are interesting as showing one of the causes of idiocy, viz., intemperance in the parents. On the authority of Mr. Richards, we may state that the parents of these children have had healthy and normal offspring at periods of their lives when intemperance was not their prominent vice, and that, too, both before and since the birth of these, who were born while their parents were addicted to strong drink. No. 16 also has club-foot. No. 15, lately received at South Boston, is a most curious-looking idiot; sixteen years of age, of large frame and great strength, his broad shoulders surmounted by a small head covered with bristly red hair; his lower extremities are weak, and his gait shuffling; the circulation is very languid, as it generally is in idiots, indicated by the lividity and coldness of the lips and hands; his violent gestures and uncouth noises have been considerably modified by kind treatment during his stay of only a few weeks. Of the Aztec children we shall speak below.

TABLE II.

	1st measure.	2d measure.	3d measure.	Where found.	No.
Average skull,	21 inches.	12½ inches.	12½ inches.		19
Carib skull,	21¼ "	12 "	12 "	No. 359, Medical College.	20
Child 5 years old,	18½ "	12 "	12¼ "	Nat. Hist. Society.	21
" 4 " "	18¼ "	11½ "	12½ "	" " "	22
" 3 " "	18 "	11¼ "	12 "	" " "	23
" 2 " "	17½ "	12 "	12¾ "	" " "	24
" 1 " "	17½ "	11¼ "	12¼ "	" " "	25
" at birth,	12¾ "	8 "	8 "	" " "	26
Orang Outang,	13½ "	8 "	8½ "	No. 97, Medical College.	27

From these tables, it will be perceived that all the idiots had skulls too small for a brain sufficient for a full manifestation of the intellectual powers; that they had skulls smaller than an average child of five years of age; that two, one adult and the other seven years old, had skulls inferior to a child two years old; that six were inferior to a child one year old in measurements,

though the ages ranged from six to twenty-one years; that four were not above the new-born child as regards cerebral development; that a diminution of three inches in the first measurement, and one to two inches in the second and third measurements, is almost sure to be followed by greater or less imbecility. In the second table, by comparing the flattened Carib skull with an average skull, we see that, though the form is changed, and the forehead much flattened, the capacity of the cranium is unchanged; showing that distortion is no indication necessarily of imbecility, unless confirmed by actual measurement. There would, perhaps, be a difference of half an inch in different specimens of skulls of children; but a single average specimen is sufficient to show the inferiority of the idiot skull.

We see, then, that below a certain size of the brain, there is idiocy; and we also see that the actual size of idiotic brains varies. An idiot with a small brain (*e. g.* No. 13) may be superior to one with a larger brain (*e. g.* No. 14); in both, idiocy arises from a too small brain: but why should the smaller be the better brain? It is due to the different conditions of the bodily organization, or *temperament*. Dr. Howe, speaking of these two boys in his report, says: "The first named boy, whose head is so much smaller than the second, and, indeed, than any boy in the school, and who has such a striking resemblance to the ape tribe, manifests much more vivacity, activity, and intelligence than the second, and, indeed, than several of the others—and precisely for the reason that the man of 'blood,' or fine temperament, is superior in these respects to the man of coarse organization—though his brain may be smaller. The boy's body is of a much finer organization, and his brain, doubtless, is so likewise."—p. 57.

The deformity of idiot crania affects principally the anterior and superior portions; while the parts destined for the animal propensities and instincts are well developed. This we should expect from an arrest of development; as it is admitted that, when the growth of the brain is natural, the anterior portions are hardly formed at a time when the convolutions of the other regions are comparatively well developed—showing the order and preference of nature in forming first the portions destined for the vegetative functions.

The fact that in idiots the animal, instinctive, and emotional sensations are usually active, is interesting in connection with certain views regarding the physiology of the brain that have of late years been generally received. At the base of the brain, distinct from the cerebral hemispheres and the cerebellum, is a series of ganglia, which have been called "sensory ganglia:" these are the corpora striata and the thalami optici; and the olfactive, optic, and auditory ganglia, which do not interest us at present. Though these have commonly been considered as mere appendages to the hemispheres, Carpenter maintains that they have an independent character, from the large quantity of vesicular matter they contain, and have special functions assigned to them. As we descend in the animal scale, we find these ganglia increasing at the expense of the cerebral hemispheres; we also in the same ratio find a

less and less display of intelligence and will, and a greater predominance of the motions arising from instinct, that is, without any adaptation of means to ends. As in animals, so in man; in proportion as the reasoning powers are deficient (for it cannot be doubted that animals have a kind of intellect comparable with the reason of man), the instinctive impulses become stronger. As in the lower animals, so in the human idiot, the instinctive impulses, situated in these sensory ganglia, are strong, for his preservation from danger, and the supply of his necessary wants; though, in this respect inferior to the animal, the human idiot, from want of power over the nerves and muscles, cannot always supply even his simplest wants. In these sensory ganglia is the seat of the instincts of animals, and the corresponding emotional actions in man: *to* the *thalami optici* as the focus of *sensation*, and *from* the *corpora striata* as the focus of *motion*, go the nerves which communicate the sensations, and the nerves which excite the motions, of instinctive and emotional actions. These actions being generally the most marked in idiots, we should expect to find these ganglia well developed in this class—not necessarily enlarged; as, if they were of the natural size only, they would undoubtedly be more active in proportion to the deficiency of the cerebral hemispheres. Whether pathological anatomy has decided this point, we are unable to say.

Phrenology has always claimed a peculiar connection between the cerebellum and the *genital* system, and has adduced the frequent, perhaps general, activity of these functions in idiots in support of this view. Dr. Carpenter states that the weight of testimony, from comparative anatomy, experimental physiology and pathology, is decided in regard to the connection of the cerebellum with the regulation of the *motor* function; though he does not totally deny the opinion of Dr. Gall. He adds, "It would seem by no means improbable that the lobes are specially connected with the regulation and co-ordination of movements; whilst the vermiform processes, which are very large in many animals in which the former scarcely present themselves, are the parts connected with the sexual function."

There is in idiocy an apparent contradiction as far as the cerebellum is concerned, inasmuch as there are frequently in the idiot strong sexual propensities, with a great want of order and control in the voluntary movements, and *vice versâ*. To explain this would require a combination, to say the least, of the phrenological doctrine with the views of Carpenter and others—and perhaps the entire separation of the sexual functions from the cerebellum.

It has been already seen that the idiot of Suabia (six years old) resembled very nearly, in shape and proportion of the skull, the Aztec children; and the phenomena of idiocy have now been sufficiently detailed to enable us to say why and to what extent these children are idiots. The measurements of the Suabian head are 14, 8¼, and 8¼ inches; the Aztecs have heads as small as new-born children, viz., 12, 7½ and 7½ inches, considerably smaller than the Suabian head. These children are now known to be dwarf specimens of a

Central American race of Indians, such as may occur in any race; though no dwarfs on record have equalled these in the smallness of their crania. The brain seems merely too small, without any great disproportion in any of its parts; though, as usual, there is a relative inferiority of the anterior lobes, which may partly be accounted for by external circumstances with them favouring the development and exercise of the animal functions more than the intellectual. It is almost a harmonious want of development (if the expression be allowable), which gives them more the appearance of men in miniature than of idiots, though from the dwarfed condition of their brains they are necessarily partial idiots. The prominence of their features, though considerable, is exaggerated by their retreating foreheads; their bodies and extremities are well formed; they have good command over their muscles, and are quite agile, being continually in motion, differing in this respect from the majority of idiots. They certainly articulate words, and make a variety of animal-like noises, expressive of their wants, of anger, of joy, of surprise, and of other feelings, which imply considerable intelligence. They understand speech in others to a certain extent, as they obey like a little child; so that, as regards speech, as much seems to depend on an abnormal condition of the vocal organs, or the nerves supplying them, as on any intellectual defect. The senses are acute, especially sight and hearing; they are very attentive and curious, eagerly examining every new object. They in part feed themselves, and can chew solid food; they are decent in their habits, affectionate towards each other and to strangers; and they manifest desires and a degree of knowledge which place them high in the class of idiots, if not quite above them. The fact that the boy drivels, so characteristic of idiocy as to have become a byword, loses some of its significance when it is known that he is undergoing the process of his second dentition. Though they are dwarfs and idiots, yet they cannot be placed in the lowest classes; they exhibit such evident signs of intelligence, and are wanting in so many of the usual symptoms of idiocy, that we have little doubt that a judicious system of education would enable them to take a much higher rank among human beings than they now occupy.

Idiocy is, then, the inevitable result of a brain under certain dimensions. There are various lesions mentioned by authors as found in idiotic brains; among others, the small number and flatness of the convolutions of the cerebrum and cerebellum generally. Solly quotes from Breschet the case of a girl, fifteen years of age, in a complete state of idiocy, in whom the two anterior lobes of the brain were wanting; at the bottom of and behind the membranous pouch which replaced them, the corpora striata were seen exposed. In some cases, the brain seems hypertrophied; in others atrophied, with narrowness of the ventricles, so much insisted on by Esquirol; the convolutions may be found hardened, irregular, and discoloured, which Rostan thinks the result of softening followed by absorption: these lesions sometimes reach the optic thalami, the corpora striata, and the corpus callosum, and must have

depended on arrest of development or intra-uterine disease of the brain, as they would soon have proved fatal if arising after birth.

Spurzheim says, "The brain of an idiot never resembles that of a sane person. Its form or texture is different." Even when the skull is well formed, as it is in many idiots from birth, the brain may be very small, and the interval be made up by a thickening of the bones. He mentions the skull of an idiot boy, which was three-fourths of an inch thick. The atrophy of the brain is usually accompanied by the atrophy of the extremities. An idiot examined by Esquirol presented the following symptoms, mentioned in Spurzheim's work on Insanity (pp. 243–4). The limbs of the right side were greatly atrophied, shorter than the left, and incapable of movement; the limbs of the left side were natural, and capable of voluntary motions; the head was small, but not deformed. On opening it, nearly all the gray cortical substance on both hemispheres was found wanting; instead of convolutions, there were only small irregular granulations; in regard to the white substance, that of the right hemisphere was natural, but in the left it was almost entirely wanting, being occupied by a sac of transparent fluid. This case has an interesting physiological bearing, as showing that the gray substance is not essential to voluntary motion, but is, as Sir C. Bell supposed, the seat of the intellect.

The pathological anatomy of "cretinism," by which is here understood any idiotic condition from causes subsequent to birth, must of course be very various. Only the most common and evident will be mentioned, and such as are suggested by those casts of hydrocephalic idiot heads in which the distortion reminds one of the Natchez Indian heads. The dimensions are very great, as will be seen from the following table:—

TABLE III.—*Hydrocephalic Heads.*

	1st measure.	2d measure.	3d measure.	Where found.	No.
Pimault.	21 inches.	15½ inches.	16 inches.	Med. College, No. 86	28
Do.	19 "	12 "	15 "	" " " 87	29
	24¾ "	14 "	15½ "	" " " 106 *a*	30
	25½ "	17 "	18 "	" " " 107	31
Thick skull	25 "	15½ "	16½ "	" " " 345	32

By comparing these with an average skull (No. 19), we see the other extreme of size in idiot heads. We shall not here detail the symptoms of chronic hydrocephalus, nor its morbid appearances, but only allude to one condition of the brain connected with the thickness of the cranial bones usually met with after the absorption of the cerebral fluid. The thick skull (No. 32) was that of a woman, who, at the age of fifty, enjoyed the use of all her faculties; from this time, her skull gradually thickened from disease, and her faculties became impaired in the same degree, till she died, at the age of sixty. The average thickness is about one inch; it is thickest at the sides and posteriorly, where it is an inch and a quarter thick; its thinnest part is one-half an inch thick. In the plates recently published of the diseased bones of the Dupuy-

tren Museum in Paris, another specimen, equally remarkable, is accurately represented.

In some cases, thickening of the skull is undoubtedly the result of increased action in the vessels of the head. Dr. Combe noticed it in cases where there had been unusual activity of certain faculties, with increased cerebral circulation; and this is still more common in actual insanity. He mentions (on Mental Derangement, p. 259) a case where the brain had diminished in size in proportion to the increased thickness of the skull, and where the frontal convolutions, corresponding to the thickest part of the frontal bone, were proportionally smaller than in the rest of the brain. He gives several cases, in all of which the cerebral vessels were gorged with blood. Thickness of the skull may also occur in other diseases of increased action, as, for instance, in erysipelas of the head (*op. cit.* p. 262), in which there was unusual thickness in the occipital region. In some cases of thickening, the diploë is perfect, the increase being in the two tables; but in others everything is confounded in one thickened mass, which appears to have been the case in our specimen; the bone is said sometimes to be of an ivory hardness. As we know exostosis is the result of a limited periostitis, there is no improbability in supposing that this general hyperostosis is the result of a general inflammation of this membrane. It would be difficult to account for it satisfactorily, when it occurs on the inner table, on any other hypothesis.

Chronic hydrocephalus affects the bones of the head in two ways: Either the bones are thinned and softened from imperfect ossification, or they are thickened. According to Andral, this thickness is not accompanied by any great increase in weight, the compact bone being replaced by a spongy texture. The cause of thickening is supposed by Andral to be this: the quantity of liquid having reached its maximum, if life be prolonged, it begins to be absorbed; as the liquid disappears, in order that there may be no interval between the brain and bone (ossification preventing the depression of the bone towards the brain) new osseous deposits must be made on the internal surface of the cranium, according as the brain assumes its natural dimensions; so that externally the head preserves the hydrocephalic size, while the cranial cavity has only its normal capacity. When the effusion separates the bones, leaving a membranous space between them—if the subject lives to be adult—these membranous spaces are filled by ossa Wormiana, as has been shown by Rudolphi and Breschet; these are chiefly found at the superior angle of the occipital bone and along the lambdoidal suture, where separation would very likely be greatest, and here also is generally found the greatest thickening. It is not meant to be understood that only the above cause is concerned in the production of these supernumerary bones; but this is only one of many, though a more frequent one than is usually admitted.

From whatever cause the thickening proceeds, the manifestations of the mind are more or less disordered. Out of 216 cases of insane persons, Gredin found 167 who had thickening of the skull—seven-ninths of the whole.

These hydrocephalic heads show various shapes. Pimault had a flattening from front to back, like the Natchez head; of her it is said that she had shown a great deal of pride.—No. 30 was a well-formed head, though enlarged in all its diameters.—No. 31, the largest of all, was a child two or three years old, with great prominence of frontal region and vertex. An examination of the brain shows an anterior arrest of development; and a great flatness, after the evacuation of the water.

It will be observed that in secondary idiocy there is no arrest of development, but a disorganization and disease in a brain previously healthy. Next to hydrocephalus as a cause of idiocy may be ranked the cerebral lesions of "cretinism," in its restricted sense. Dr. Pellissier, of Geneva (in Dr. Güggenbuhl's First Report of the Abendberg Institution, p. 49), considers a false hypertrophy of the brain as the most probable cause of cretinism. This organ may undergo a kind of vesicular extension, without an actual serous effusion, which diminishes and flattens the convolutions; in other words, hypertrophy with dilatation. In this stage of the affection, the cranium is atrophied by this dilatation, the sutures are separated, and the fontanelles are widened. When the dilatation ceases, the brain again subsides, and the bone in proportion becomes hypertrophied; he thus accounts for the thickening of the skull, which he says almost always exists in cretins of an advanced age. In this period of false cerebral development, the intellectual faculties are greater than in healthy children of the same age; this makes the subsequent decline the more marked and painful.

The cretin head, as will be seen by comparing the following table with the preceding, is larger than the average head of the same age; as would be supposed from the hypertrophy which the brain undergoes. The measurements of the first five skulls are taken from Dr. Güggenbuhl's Report above quoted; the last is No. 405 in the Medical College Collection.

TABLE IV.—*Cretins.*

	Age.	1st measure.	2d measure.	3d measure.	No.
Marie S. - - -	2 years	16 inches.	13¾ inches.	10½ inches.	33
Claudine S. - - -	2 "	18 "	14¼ "	12¼ "	34
John F. - - -	3 "	20¼ "	16 "	9½ "	35
Eliz. Z. - - -	3 "	19⅛ "	15¾ "	12¾ "	36
Martin D. - - -	5 "	20⅜ "	14⅞ "	10 "	37
Cretin of the Vallais -	aged	20½ "	13 "	11½ "	38

In the last skull, the size is about the average; the antero-posterior diameter is somewhat longer, while the third measurement is correspondingly less; the bones are heavy, and, as far as can be judged without section, thicker than usual, analogous to the thickening of rachitic bones. On the sides of the occipital bone there is considerable prominence, with a depression on the median line; perhaps to be explained by the cerebral hypertrophy (of Dr. Pellissier) expanding the bones at the points of least resistance on the sides, the middle

being supported and strengthened by the internal ridge for the sinuses and falx.

There is no need to more than mention the other forms of secondary idiocy, from various cerebral diseases, recognizable after death; and those more insidious forms from mere nervous exhaustion depending on severe study, venereal and other excesses, which may or may not elude our post-mortem search. These have been recognized as forms of dementia. One of the most common is believed to be from the premature tasking of the infant mind by our forcing-system of education, which, if it do not end fatally by cerebral disease, is liable to be followed by diminution of the intellectual powers, and even by hopeless idiocy.

The treatment of the various forms of idiocy and cretinism may be summed up in a few words. In an adult, who has been an idiot from birth, there is but slight hope of any great amelioration, as far as the brain is concerned, though the general health may be improved. All authors agree that *physical* treatment is most to be depended on, viz., pure air, gymnastic exercises, proper diet, and cleanliness. Medicines, except to correct ordinary symptoms, have not been attended with success. As a general stimulant to the nervous system, electricity and electro-magnetism would seem peculiarly applicable. Moral means are also of great value, as gentleness, kindness, and affectionate treatment.

As the animal instincts are here developed at the expense of the intellectual and moral sentiments, it becomes an object, if possible, to restore the equilibrium between these; if the higher feelings can be called into play, their animal nature will be proportionally lessened, as it were, by a kind of cerebral revulsion. The success of teachers has been found to be proportioned to their tact in interesting and fixing attention, that the rudiments of knowledge may be communicated; if *one* step be made in the right direction, it is comparatively easy to keep them in the path. Says Dr. Howe (page 54 of his Report), in the idiot, and in every one, "that which is, by nature, a little the strongest, becomes, *by exercise of its functions*, and by *neglect of exercise* of the functions of other parts, *very much* the *strongest*, until it utterly prostrates and masters them."

Dr. Combe (*op. cit.* p. 224) remarks that the excitement of fever may restore the idiotic to reason. When the idiocy arises from cerebral inaction or weakness, the febrile paroxysm raises the activity of the brain to the height requisite for a vigorous exercise of its functions; when the paroxysm is over, the mental phenomena return to their former level. How far an artificially produced febrile paroxysm, as by the agency of cold water, may be of advantage, would seem worthy of trial; the much abused "vis medicatrix naturæ" might thus be stimulated in a natural and efficient manner. That disease, artificial or natural, may be of advantage in the various forms of *dementia*, may be conceived from the following analogous facts mentioned by Dr. C. H. Stedman in the last Report of the Boston Lunatic Hospital (p. 18).

"One patient, an Indian, in good bodily health, afflicted with chronic mania, and who had been insane for three years, was seized with the severest form of dysentery which has ever come under my observation. While in the height of the malady, his mental operations began to undergo a change. After which, his mental and bodily convalescence went on together, and resulted in the perfect restoration of the entire man. Another, a man who had been insane over twenty years, and quite a difficult one to manage, owing to his strong mischievous propensities, was attacked with the same affection, and remained dangerously ill for some weeks. He recovered from dysentery, and now no patient in the house is more quiet and controllable. Indeed, to many he would appear mentally sound."

If we examine the chemical constitution of the brain, we shall find a difference between the idiot and the normal condition, which it may be well to mention. From the researches of M. Couerbe, it appears that the proportion of phosphorus is much less in the idiot than in the normal brain. According to Carpenter, the contents of the nerve-cells and tubes are chiefly phosphorized fats; and he regards them as the active agents in the operations of the nervous system. The amount of phosphorus is greatest at the period of greatest mental vigor; in idiocy, the proportion is one-half less. This may indicate the internal exhibition of phosphorus in idiocy; it has long been known as an excellent general stimulant of the nervous system.

In Dr. Güggenbuhl's Report, there are detailed several cases of great improvement in cretins from the treatment followed at the Institution on the Abendberg; this treatment is purely physical. In No. 33, after a residence of two and a half years, there was an increase in the first measurement of $2\frac{5}{8}$ inches; with a corresponding improvement in the intellectual faculties. For further details of a most satisfactory nature, this Report may be consulted with advantage.

Any interested in the improvement of idiots will be greatly astonished as well as gratified by a visit to the school at S. Boston, under the care of Mr. Richards. What volumes could not convince us of before the actual experiment, they will there acknowledge, viz., that kind treatment, perseverance, proper food, exercise, sports, and a judicious mental discipline, will do much to improve the condition of the hitherto abandoned class of idiots.

It has been seen that idiocy and partial talent may exist together, where, with a generally defective brain, certain portions are well developed; and in such cases, where the size and form of the head are changed, accurate measurements may be of great importance in a legal point of view. The law of Dr. Gall, then, may be repeated, in conclusion, viz., that when the first and second measurements of the head (as above defined) are below 17 and 11 inches, there is always greater or less stupidity; that when the first is from 11 to 13 inches, and the second 8 or 9, the condition can be but little above idiocy.

Boston, *Jan.* 1851.

ART. IX.—*Case of Hæmoptysis Neonatorum.* By CHARLES G. ADAMS, JR., M. D., of Keene, N. H.

AMONG my pathological records for October, 1850, I find the following case, which may be considered not altogether unworthy of notice.

Mrs. ———, ætat. thirty, in stature small, but of tolerable constitutional vigor, was confined prematurely with her second child at the completion of a gestation of seven months and a half. Labour natural, child (female) of normal size, funis around the neck, respiration established artificially.

The respirations continued feeble the first twelve hours, with no pulse at the wrist. The child, however, nursed and cried well, had natural evacuations from bowels and bladder, and soon put on a more favourable aspect, extremities becoming warmer, pulse being perceptible at wrist, and respiration rather more free. But about an hour before death, it had a sudden discharge of bright, arterial blood from the mouth and nose, with symptoms of suffocation, which led the nurse to think it was dying. It rallied, however, and respiration again became comparatively easy.

After an interval of thirty or forty minutes, it suffered another similar attack of the hemorrhage, under which it rapidly sunk, just twenty-four hours after birth.

The quantity of blood lost might have been five or six drachms. The mother had a good "getting up." Her first labour, which was premature, occurred ten months previously, at the commencement of the ninth month, the child dead-born, and in an advanced stage of putrescence.

The father is rather slender, inclined to pulmonary difficulty, having suffered from one or two attacks of hæmoptysis.

The day following I made an examination, thirty hours *post-mortem*, and these are the appearances that were presented.

Exterior habit.—The skin has universally a uniform yellow tint. Upon neck and upper extremities numerous petechiæ, or circular, livid spots of extravasated blood, varying in size from a diameter of half to three or four lines. These were observed before death. *Abdomen* much distended, but flat on percussion. No rigor mortis.

Encephalon not inspected.

Thorax.—Thymus gland as usual very large, appearing perfectly healthy. The lungs of a very dark livid colour, and solid, except a small portion on their lower anterior edge, perhaps one or two cubic inches, which was of a more healthy hue, crepitated under pressure, and alone had a specific gravity lighter than water. Upon incision the solid portion presented a surface almost black, glistening like the cut surface of a coagulum, though less smooth and uniform, which led me to pronounce the lesion without hesitation extensive pulmonary apoplexy. The bronchia, where they could be traced, were filled with a

bloody, frothy mucus. No tubercles could be anywhere discerned. In the pleural cavities, a small quantity of straw-coloured serum.

The *Heart* contained dark, fluid blood; parietes tolerably firm. Foramen ovale closed by its diaphanous valvular membrane. Ductus arteriosus remained pervious.

Abdomen.—Upon laying back its parietes, the liver and spleen concealed from view every other viscus, filling almost the entire abdominal cavity. Peritoneum natural.

Stomach.—Exterior or peritoneal aspect presented numerous lengthened, livid spots of extravasated blood, from one to three or four lines in width, partially encircling the viscus, and more abundant and larger towards the cardiac extremity. Considerably distended with gas.

Intestines.—Contracted generally; also presenting externally the dark spots of extravasated blood, circular or oval in form, many three-quarters of an inch in diameter, interspersed at somewhat distant intervals throughout the entire tract of the alimentary tube; more numerous, however, in the small intestines, which had a universal pink hue, and in some portions of considerable extent, a very dark colour.

Gastro-enteric mucous membrane.—The stomach contained three or four ounces of dark-coloured, sanguineous fluid, with one or two black coagula floating in it. Its mucous coat sufficiently firm, of a bright rose colour, from the evident engorgement of minute capillaries, and in some places quite dark. In its thickness and beneath it existed the ecchymosed spots above noticed. No coagula were found adherent. The small intestines contained a considerable quantity of thick, bloody mucus, having a slimy aspect and feel. No natural appearance about the contents of the intestines anywhere. Their mucous membrane was considerably softened in places, having a general aspect like that of the gastric: the whole simulating most exactly a case of gastro-enteritis of high grade, in the adult. No ulceration, however, was discovered.

The *Mesenteric glands* were numerous, enlarged, and of a rose colour.

Liver of the normal proportional dimensions: colour and consistence natural, though somewhat congested. Gall bladder of a very light colour, and comparatively empty. Supra-renal capsules and kidneys normal, the latter being distinctly lobulated.

Spleen in colour and consistence natural, but in size somewhat exceeding the average weight of that organ in the *adult.*

No other remarkable appearances.

The foregoing case presents for consideration the following interesting phases: 1. The jaundice. 2. Its connection with purpura (porphyra) hemorrhagica or hemorrhæa petechialis. And 3. The occurrence of the latter at this early period of life. With a brief notice of each, I shall submit the case.

First, then, of the jaundice.

The saffron hue so common to new-born infants has won for itself a place

in the nosology of authors—the icterus neonatorum. At the same time, very many are disposed to dispute its claim to the designation of *jaundice*, ascribing it either to the hyperæmial condition of the whole surface at birth, a state analogous to a bruise, which terminates by a change of hue from that to the natural flesh colour, or to that never-failing resource, "a cachectic condition of the blood"—both entirely unconnected with any hepatic derangement; and asserting that *true* jaundice at this period of life, though it is not exempt from it, is of rare occurrence.* While, on the other hand, we see another class of observers† assigning its pathology—more properly, as it seems to us—originally to some hepatic or biliary trouble, in consequence of which the bilious fluids return to be mixed again with the blood, thus occasioning the yellow colour; speculating much upon the route they take, yet after all leaving future observation to decide the *point d'appui* of functional deviation.

This would seem to be the opinion of Richter, supported by others‡ of his own time, who imputes the jaundice to "a stimulus or irritation acting upon the hepatic system, which prevents the afflux, secretion, and excretion of the bilious fluids; or rather so deranges the circulation in the hepatic system, that the several parts do not reach their destined places according to the laws of health, but are again mixed with the general mass of fluids." Another argument also in its favour is the sudden change which takes place in the circulation of the liver at birth.

The source of "stimulus or irritation" in these cases would seem to be the sudden change of material in nutrition, the mother's milk, which must act powerfully, though in a varying degree, upon the nice sensibilities of infantile life.

The existence of *true jaundice, imprimis*, we have deemed it important to determine, in the consideration of its connection with hemorrhage in new-born infants.

Now, we know, from observation, that adults affected with jaundice are exceedingly prone to the most inveterate hemorrhages from the slightest wound; that the analysis of blood in cholæmia§ gives in some cases the presence of bilic or bilifellinic acid, and in all a great decrease in the red corpuscles and fibrin, a decrease in the normal proportions of either predisposing to hemorrhage;‖ also that, by the presence of the abnormal ingredients, the blood is rendered highly alkaline, which has been said to diminish its tendency to coagulate by altering the character of the fibrin, and thus to favour exhalation.

Such are the phenomena which attend jaundice in the adult, and one of the most distinguished pathologists of the present day has remarked that, of the numerous cases which have fallen under his observation, of hemorrhage in new-born children, either from the umbilicus or into the internal organs, very

* Sauvages, Mason Good, Dewees, Underwood, Watson.

† Cutler, Stokes, Mackintosh, Gregory, Wood, Evanson, and Maunsell.

‡ Selle, Vogel, Chaux, Vogler, and Bang.

§ Simon.

‖ Magendie and Andral.

many have been *associated with jaundice.* In this case, then, a limited personal experience becomes valuable, endorsed by such high authority.

Purpura hemorrhagica, a case of which affection the foregoing must be considered from its strong analogy in phenomena and morbid appearances, is not uncommon in children and youth, happening, indeed, most often in the young, but rarely at this early period of existence.

Out of seventeen cases which occurred to Willan, three were infants under a year old. And never, with a single exception,* have I seen an allusion to this disease as intra-uterine or congenital.

In this affection, we find all the morbid appearances detailed above, not omitting *jaundice,* which, though not invariably present, is quite common, viz., with external and internal ecchymoses, effusion of blood into the stomach and intestines (associated even with enteritis), pulmonary apoplexy, disease of the liver and hypertrophy of the spleen,† sometimes even much more extensive lesions. Rayer observes, however, that pulmonary and intestinal hemorrhages are most frequent in *adults*—with whom all writers affirm that it is not uncommonly an immediate cause of death.

The master-mind of antiquity was very intent "to clear the blood of its acrimony, its vicious humours, rough acidity, fetid alkali, and rancid oil‡ "by his το ενορμῶν of organic fibre! So also, in this affection, Brown was impatient to add an extra stimulus to the blood to counteract "the atony and laxity of the vessels which permitted the finer parts of the fluids, sometimes serum, sometimes red blood, to flow through their patulous orifices."§

And since their day, while one clings to the theory of spasm of the capillaries, and another to that of paralysis of the venous system,‖ most are compelled, both humorists and solidists, to unite in this, that the phenomena in this disease are to be ascribed to "a disturbance of the healthy relations of the blood with the organic sensibility of the capillary vessels."¶

Now, too, we are able to see more clearly wherein and to what extent the blood is faulty. Passing over the more minute quantitative analysis of blood in purpura hemorrhagica, we find a decided augmentation in its watery portions, and decrease of the blood-corpuscles, besides the presence of *bile,* which Simon deems of great importance from its power of dissolving the blood-corpuscles.**

Richter†† relates a case of *petechiæ sine febre,* wherein the petechiæ "were purely of a bilious nature."

That jaundice is a common accompaniment of purpura hemorrhagica, I am inclined to believe, partly from personal observation, but mostly from the concurring opinions of numerous other observers. This existence of bile in the

* Dr. Ritchie, Braithwaite, part xvi. p. 51.
† Drs. Ritchie and Goldie.
§ Elementa Medicinæ.
¶ Eberle, Practice of Medicine.
†† Medical and Surgical Observations.
‡ Aphorisms of Hippocrates.
‖ Zoonomia.
** Chemistry of Man.

blood, with or without its colouring principle, coupled with the common occurrence of jaundice in this affection, either as cause or effect, would seem to suggest a most interesting subject of inquiry for future observation.

Of the hæmoptysis in this case, it seems to me probable, from the clear, bright red, arterial nature of the blood, the symptoms of suffocation which followed, and the appearance of the lungs upon necropsy, that the pulmonary mucous membrane was the true source.

Was the disease itself hereditary, or was that innate deficiency of vital energy its exciting cause? Certainly not the former; and though the latter might, in a considerable degree, have predisposed to it, still I suppose this hemorrhagic diathesis depended ultimately for its cause upon *hepatic derangement*, which operated directly in producing the spanæmia, and indirectly influenced the condition of the solids.*

Should this view seem to relapse nearly two thousand years into the *mechanical* considerations of the *methodic sect*, nevertheless it will be considered nearer the true pathology than anything exclusively of the fluids or of the solids, of "spasmodic action of the capillaries," or "paralysis of the venous system."

Had life been prolonged in this case, it is not improbable that a fatal hemorrhage would have occurred at the umbilicus, after sloughing of the cord.

Keene, New Hampshire, *January*, 1851.

Art. X.—*On a new form of Phosphate of Lime in Crystals; as it occurs in Putrefying Urine.* By Jno. C. Dalton, Jr., M. D. (Read before the Boston Society for Medical Observation, Feb. 17, 1851.) [With seven wood-cuts.]

If healthy urine be allowed to remain for some days in a cylindrical glass vessel, lightly covered, to prevent the access of dust, &c., its gradual decomposition gives rise to various crystalline formations. After the first twenty-four hours, there is usually to be seen, at the bottom of the vessel, a very light cottony cloud, composed apparently of mucus from the urinary passages, but not presenting any very definite forms under the microscope, with the exception of octohedral crystals of oxalate of lime, which it frequently contains, in considerable abundance.

At the same time, or a little later, a very thin pellicle is often visible on the surface of the urine, composed of minute crystals of oxalate of lime, less perfectly formed, for the most part, than those at the bottom, but mingled

* I regret not having made a chemical and microscopical analysis of the fluids in this case.

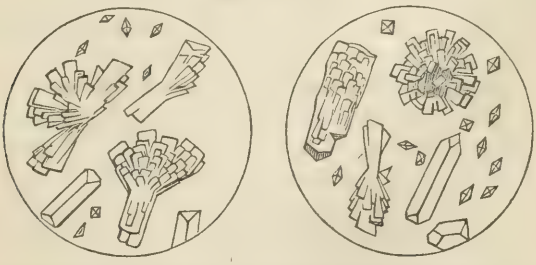
usually with a few of the ordinary size and shape. This pellicle is often so delicate that it is only to be seen by allowing the light to fall obliquely upon it, when a tremulous glittering surface becomes visible, which frequently exhibits a play of faint prismatic colours. It is sometimes arranged in wavy lines and streaks, so as to give a marbled appearance to the surface of the fluid.

After a few days, this pellicle sometimes begins to be sprinkled with minute, whitish, opaque spots. These spots are caused by collections of small radiating crystals, which at first are easily broken up and separated from each other in removing them from the surface of the urine; so that, at the time when their formation has first commenced, they are usually obtained only as detached bodies, or in the form of incomplete groups. At this time, the crystals are quite colourless and transparent, and have the shape of a slender scalene triangle, with the long sides slightly curved. They already show a disposition to form themselves into circular groups, by applying their apices to each other, thus assuming the shape of a radiated bundle or rosette. They are often, also, laid one upon another, with their flat surfaces opposed, like piles of boards. In the course of a few days longer, the crystals increase in size and thickness, still retaining their colourless aspect, and become grouped together in complete rosettes, and even in globular masses; so that, by raising and lowering the stage of the microscope, we may bring into view either the upright crystals, presenting their *butt ends* towards the observer, or those which are arranged horizontally in a circular form.

Fig. 1. (6th day.)



Fig. 2. (15th day.) Fig. 3.



Radiated bundles, together with octohedra of Oxalate of Lime and prisms of Triple Phosphate.

The period at which these crystals first make their appearance varies somewhat with the temperature of the room, and various other circumstances which hasten or retard the putrefactive changes in the urine. Usually, however, their formation commences between the third and sixth day, when the urine is just beginning to lose its acidity, but has not yet become decidedly alkaline.

In the majority of cases, the urine has been neutral in reaction at the time of their appearance, but they are not unfrequently to be seen when it is still distinctly acid.

When the alkaline reaction is fairly established, their formation ceases, and in place of them, there is an abundant production of the ordinary prismatic crystals of the triple phosphate; so that, after the first six days, the two forms are usually to be seen together, the latter predominating more and more in proportion to the length of time which has elapsed, and the rapidity with which putrefaction advances.

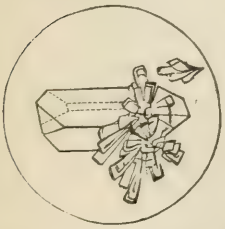
Fig. 4. (12th day.)



The radiated form is not the only one in which the crystals present themselves, but they are sometimes arranged also in a parallel position, so as to form a thick, solid mass, which even bears some resemblance occasionally to a prismatic figure, the ends and edges of the crystals which compose it remaining visible on its sides.

The precise chemical composition of these radiated crystalline bundles is not very easily ascertained, owing to the difficulty of obtaining them in any considerable quantity for manipulation. Indeed, all chemical operations on them must be conducted with the aid of the microscope; and they are usually associated, also, with several other crystalline forms, such as oxalate of lime and prisms of triple phosphate, from which it is not easy to separate them completely. They are also often surrounded, and partially obscured, by clusters of dark molecules, probably of animal matter; which, on the addition of potass, become dissolved into a translucid, gelatinous mass, leaving the crystals quite clear and sharply defined.

Fig. 5. (9th day)



Radiated bundles, mixed with large prisms of Triple Phosphate.

The crystals themselves are undoubtedly composed of some phosphatic salt. They resemble the triple phosphate very closely in their colourless and transparent aspect, and in their degree of refraction. They are not affected by potass, but dissolve slowly in acetic acid.

Fig. 6.



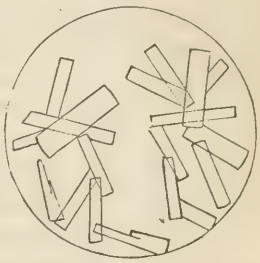
Appearance of the Radiated Bundles, while undergoing solution in Acetic Acid.

When they are recently formed, this solution takes place with comparative readiness, but as they increase in size they seem to become denser, and to resist, for a longer time, the action of the solvent. At this period, they are associated, as already stated, with the prisms of the triple phosphate; and the difference in solubility between the two is then very evident, the latter disappearing rapidly,

after the application of the acid, while the former remains, for a considerable time, untouched; so that it is possible, by this means, entirely to dissolve out the prismatic crystals, and yet wash away the acid in time to leave the radiated bundles nearly, or quite perfect.

In this regard, they resemble completely some crystals of phosphate of lime artificially prepared by Dr. Jno. Bacon, of this city, by adding chloride of calcium to urine, and allowing the mixture to stand for some days. These artificial crystals, as I am informed by Dr. B., dissolve with some difficulty in acetic acid, and can be separated from the prisms of triple phosphate, with which they are associated, by the same process as that described above, viz., by dissolving the latter, and then immediately washing away the acid with pure water. They are also flat and ribbon-like in figure, and resemble the other crystals in their general aspect and their refractive power; only they are not pointed at one extremity, and show no disposition to assume the form of radiated clusters. (Fig. 7.) It is only some days later that radiated figures are produced, composed of acicular crystals of the same salt.

Fig. 7.



Artificial Crystals of Phosphate of Lime (from one of Dr. Bacon's specimens).

Dr. Bird also states (on "Urinary Deposits," Amer. edition, p. 130) that the phosphate of lime is not quite so soluble in dilute acids as the triple phosphate, and that, "when a mixed deposit of the calcareous and magnesian phosphates exists, the phosphate of lime is left undissolved, when digested in very dilute acetic acid."

ART. XI.—*A case of Double Ovarian Dropsy—both Ovaries successfully removed by the large Peritoneal Section.* By E. R. PEASLEE, A. M., M. D., Prof. of Surgery in the Medical School of Maine.

MISS SARAH N. G——, of West Claremont, N. H., æt. 25, black hair and eyes, delicate development, but not fragile—a young lady of intellect and refinement—first consulted me on the 6th Sept. 1850. She had first discovered a tumour extending half way from the symphysis pubis to the umbilicus, and precisely on the middle line, in June, 1849, or about fifteen months ago. It was then, perhaps, three inches in diameter, very movable, and apparently of a spherical figure. Its size became doubled, she thinks, within six months afterwards, and has been still more rapidly increasing since.

It has never been painful at all, nor tender on pressure, up to the present time. A disagreeable sensation of *tension* alone has been felt, and this only for the last few months. She has never, at any former period, had any pain in either iliac or inguinal region; nor any other symptom of inflammation, or even irritation, of either ovary. Menstruation has been regular to the present time; and there has never been any leucorrhœal discharge. Nor has there been any derangement of the stomach or bowels till since she commenced the use of drastic cathartics; and her present emaciation, weakness, pallor, and loss of appetite, she attributes mainly to them. During the last few months, she has, in addition to hydragogue cathartics, made trial of diuretics, and iodine ointment—but with no perceptible benefit. Her appetite is still poor, though all medication has been suspended for two or three weeks. She is not yet troubled with either dyspnœa or nausea from the pressure of the tumour.

As several distinguished physicians had been either doubtful or incorrect in their diagnosis of Miss G.'s case, I shall be the more explicit in regard to the examination made to establish it—the general condition of the patient having been already indicated.

The *abdomen* is very prominent; its circumference being thirty-nine inches above the hips, and forty-one inches around and across them. The enlargement is regular, except that the left side, from the spine to the linea alba, measures three-quarters of an inch more than the right. It rises to within two inches of the ensiform cartilage, and fluctuation is detectable in every part of it. The abdominal walls are very tense, and not yet at all pendulous. The skin even is so tense as not to allow of any motion. No tympanitic sound is elicited by percussion, except over the epigastrium; and whether the patient is sitting, standing, or lying in varied positions, no apparent effect is produced on the fluctuation, the sound on percussion, nor the position of the enlargement itself.

A tumour is felt, *per vaginam*, in the region of the left ovary, around which (and also obscurely *within* it), fluctuation is apparent on percussing the abdomen externally; though, as a whole, it appears lobulated and quite resistant. The finger can reach only a portion of it, perhaps as large as a hen's egg.

This tumour is also felt *per rectum*, and most extensively to the left of the uterus; the latter being slightly retroverted, but not inclined to either side. This aspect of the tumour seemed entirely solid, and not manifesting the least fluctuation. It can be slightly elevated on the tip of the finger; but whether from the yielding of the attachments, or of its walls, I cannot determine.

Diagnosis.—An ovarian tumour, probably originating from the left side; the fluid being contained in a large sac constituting the greater part of the tumour; and the more solid portion, felt per vaginam, being a mass of smaller sacs connected with the latter, and containing each so small a quantity of fluid as to admit of only an obscure fluctuation.

Advised that the patient be tapped without delay, with a view to ascertain whether the fluid was principally contained in a single large sac, as appeared to be the case—how large the solid part of the tumour might be; whether the diseased mass had become adherent to the surrounding parts and organs; and all other facts bearing on the question of removal of the mass by the large peritoneal section—this operation having been previously suggested and explained to the patient before she consulted me.

Sept. 11th (five days afterwards), Dr. E. E. Phelps, of Windsor, Vt., tapped the patient, and obtained 26 lbs. of a thick fluid of a brown colour (specific gravity 1026), with flakes floating in it so large as to obstruct a canula of the common size. An apparently solid tumour at once became prominent on the left side of the abdomen, seven and a half inches in its vertical dimensions, and four inches in its transverse at its upper part by five inches at the lower. It seemed perfectly movable, and non-adherent to any contiguous part.

The patient was at once relieved. She came down stairs the morning after. Her appetite at once returned; the kidneys began immediately to act copiously, and so continued for a week. Still, Dr. Phelps found, on the 15th, that the sac was rapidly filling again.

I again saw the patient on the 17th (six days after the tapping), with Dr. S. G. Jarvis, her attending physician, and Dr. Phelps. She had sat up all day as well as yesterday, and appeared much better in countenance than when I saw her on the 6th; but a large quantity of fluid had accumulated since the 11th.

Examination.—Abdomen quite lax, and fluctuation everywhere apparent, except in the left lumbar region, and thence forwards to a line from the seventh left costal cartilage to the anterior superior spinous process of the ilium. No tympanitic sound on percussion, except over the upper part of the ascending and right half of the transverse colon; though, while the patient sits erect, it extends across the epigastrium. Circumference to-day above the hips, while erect, is thirty-three inches; around the hips, thirty-five inches. Distance across from one anterior superior spinous process to the other, thirteen and a half inches.

The solid tumour, so prominent immediately after the tapping, is far less so now. It is found to extend from the level of the left crista ilii to the cartilage of the seventh rib; is not movable to any considerable extent; is not tender nor even sensitive to pressure, and presents a distinct elevation on its anterior face half as large as a hen's egg, and about four inches from the top; probably a distinct sac full of fluid. Its position is nearly vertical, and it can be traced downwards about seven inches. Its other dimensions appear the same as those given by Dr. Phelps on the 11th; but the accumulation of fluid since then renders it more difficult to determine its size with accuracy.

The skin of the abdomen is now movable in every part, and there is no tenderness on pressure anywhere, except at two points, each about one and a

half inches square, viz., just below the cartilage of the eighth rib on the right side, and at the anterior extremity of the tenth rib on the left side. This did not appear to be peritoneal tenderness. She has had no pain since the tapping; no unpleasant sensation indeed, except a tired feeling of the abdominal muscles, which, during the past year, she has oftentimes experienced. I, therefore, discovered no proofs of adhesion of either the solid portion or the sac, now perhaps half filled with fluid again. It was, however, *possible* that the latter may be extensively adherent, either to the omentum majus, or the peritoneum of the abdominal walls, or both. The mobility of the solid portion, after tapping, satisfied Dr. Phelps, at the time, that this part of the diseased mass could not be adherent. And no sign of peritoneal inflammation has hitherto existed to lead to the suspicion of adhesion from that cause, either prior, or subsequent, to the tapping. And previous examinations even, whether external or internal, have never produced pain at the time or afterwards.

Per vaginam, the finger feels to-day merely a tenseness in the region of the left ovary, but nothing of the solid tumour detected on the first examination, eleven days ago. Nor can any fluctuation be detected in this direction from the vagina to-day.

Per rectum, also, I can detect only the unyielding band in the position of the left ovary; no fluctuation or tumour. The uterus is a little retroverted, but lies on the middle line. It is not at all tender. It can be displaced a little to the left, but not towards the right side.

The uterine sound entered the uterus two and a quarter inches, following the middle line also; but the uterus could not be moved perceptibly upon it. It produced no pain.

On passing a sound into the bladder, it also followed the normal direction, and could be passed freely in all directions within that organ.

All the changes which could be made in the position of the enlargement produced no appreciable effect upon the position either of the uterus or the bladder, while they were respectively sounded.

All the preceding facts were thought to be consistent with the diagnosis given on the 6th; the evacuation of the fluid by paracentesis having allowed the solid portion to rise higher in and above the pelvis, into the lower part of which it had before been pressed, by the greater weight in the large sac attached to it—this elevation of the tumour also producing the tense state of the left broad ligament just alluded to.

I therefore told Miss G. that, so far as positive signs were concerned, her case appeared at least as favourable for the operation of extirpation by the large section, as several of the cases reported in which it had been performed; that I did not assume that it was ever justifiable, but, if so, it would be so in the present case, so far as I could discover any indications to the contrary; that I did not, however, *advise* the operation, since it might prove fatal, even though the disease was successfully removed; and on the other hand this might, on

opening the abdomen, be found impossible, in which case she could, of course, derive no advantage from the operation, and might even lose her life in consequence of it.

She replied she had resolved to have the operation performed, if there was any possibility of its succeeding; certainly, if there was one chance in eight for her to live through and recover from it, independently of the chance of removing the disease; that she well knew all the risk, and wished to incur it. She had before said she had no desire to live as at present, and had calmly contemplated all the consequences of her decision.

At her solicitation, with the request of Drs. Phelps and Jarvis, I therefore engaged to perform the operation on the Saturday following. She seemed much relieved by my decision, and replied, "I shall long to have the day arrive."

Thursday evening, Sept. 19th.—To take a free dose of castor oil, and only fluid food afterwards. To keep quiet also, especially on Saturday—the operation to be performed at 3½ P. M. of that day.

Saturday, 21st.—The fluid has so far accumulated, during the past four days, that it is now difficult to find the solid part of the diseased mass at all. The tenderness at the two points specified on the 17th is now somewhat increased, and I discover a distinct "friction feeling" not before existing over them—mentioned at the time as a proof that adhesions of the mass had formed since my last examination.

Operation, 3½ P. M.—The patient was placed upon a table, with the feet towards a window, and resting on a chair, the head and shoulders being elevated upon pillows placed upon an inclined plane, and supported by an assistant. She had previously evacuated the bladder; the pubes had been shaven so far as would be implicated by the incision; a sheet applied around the pelvis, and a line drawn with a lead pencil, to indicate the precise position of the incision, from a point two inches above the umbilicus, and one-half inch to the left of the linea alba, down to the symphysis pubis. The temperature of the room had been raised to 80° (Fahr.), and was to be kept at this point for the first few days—the air being also kept damp during the operation by the constant evaporation of water.

Drs. Jarvis and Tolles, of Claremont; Drs. Phelps and Clark, of Windsor; Dr. Comings, of Plainfield, and Messrs. D. S. Conant and A. T. Fitch (two of my medical pupils) assisted me.

Anæsthesia was induced, in about six minutes, by a mixture of pure sulph. ether (twelve parts) and chloroform (one part), and the operation was commenced at ten minutes before four o'clock.

On dividing the skin and superficial fascia upon the line marked as above—it being nine inches in length—I found, contrary to my expectation, that the latter, together with the adipose deposit in it, was at least one and a quarter inch thick, for an extent of four inches below the umbilicus; which caused no little subsequent difficulty in closing the wound. Next, the abdominal apo-

neurosis was cautiously divided for half an inch, at a point three inches below the umbilicus, with the intention of falling directly upon the linea alba, and between the recti muscles. But the deviation of the linea alba to the left side being still greater than I had calculated, my incision was found to have penetrated the sheath of one of the recti. By the introduction of a probe, it was at once ascertained to be the *right* rectus which I had reached, and just at its inner edge; and thus the precise position of the linea alba was indicated.

After all external hemorrhage had ceased (not over ℥j), I carefully divided the linea alba for about six inches. In doing this, a small artery in the edge of the left rectus was severed; but the contact of the air at once stopped the bleeding. I now expected to see the fascia transversalis and peritoneum; since, in this operation, they are generally found very much thickened. But in this I was disappointed. On dividing, with the greatest care, the very thin aponeurosis, I brought into view a dense white membrane, and of too smooth an aspect to be the external surface either of the fascia transversalis or the peritoneum; and which I concluded, after a brief examination, must be the sac itself. But, as some doubt was expressed as to the correctness of this opinion, I endeavoured by careful dissection to detach from it either the fascia or the peritoneum, until it became certain that the membrane in sight was the sac itself. In settling this question, however, at least ten minutes were lost. Moreover, a vein in the wall of the sac was divided, which afforded almost all of the blood lost during the operation, and which amounted in all to not more than ℥x. The hemorrhage was arrested by applying a ligature to the vein, till the sac should be removed. In detaching the vein for this purpose, the sac was divided completely through, and a small quantity of the characteristic contents escaped.

And at this conjuncture, still another cause of delay occurred. The patient, hitherto perfectly quiescent, now began to make violent efforts to vomit; and supposing the anæsthetic might possibly produce this effect, it was at once withdrawn, and not afterwards administered during the operation. Still the retching continued; and during this time I could only sustain the abdomen with both hands, and keep the internal organs from protruding as effectually as I might. About fifteen minutes were lost in this way. During these violent efforts, the incision gaped so as to assume an elliptical form; the sac filling up the ellipse, except when a loop of intestine or a portion of omentum made its appearance. These were, however, always replaced with ease, during all stages of the operation.

When the retching had ceased, I introduced the hand to ascertain if the sac were anywhere adherent—intending, if it were so extensively attached as to render it improper to remove it, to adopt the method first suggested, I think, by Prof. Récamier, viz., to evacuate the contents through a small opening, and attempt to produce adhesion of its anterior surface to the abdo-

minal walls. But to my great satisfaction, I found the mass was nowhere adherent except at the points mentioned before I commenced the operation, over which the "friction feeling" was so distinct. Here the adhesions covered, on each side, a surface about two inches square.

The contents of the sac were next evacuated, through a large incision, into a bucket, and amounted to twenty-two pounds of fluid, like that obtained by Dr. Phelps ten days before. The incision through the abdominal aponeurosis was now enlarged to correspond with that in the skin; and the sac being now collapsed, the adhesions were easily broken up by the fingers; and before removing the hand, I left every part free down to the pedicle, which was very broad and firm, and attached to the left side of the uterus, as was expected.

The more solid part of the mass is now seen to be an aggregation of smaller sacs of various sizes, from that of a pea upwards. The two largest were punctured with a trocar, and at least a pound of fluid escaped. The whole mass was then lifted out of the abdominal cavity, and held by assistants, while I passed a double ligature of six threads of saddler's silk, "not twisted, but well waxed," as Dr. Atlee advises; and cutting out the needle, tied each portion around one-half of the pedicle. The latter was six inches wide and half an inch thick; except one inch in the middle, where the two layers of peritoneum in the broad ligament appeared in their natural relation. On the outer side of this thin portion were an artery (nearly as large as the radial) and a vein, and a quantity of areolar tissue; on the inside, the Fallopian tube, and a still larger artery and vein, with a quantity of areolar tissue supporting them. The pedicle was divided obliquely upwards, and to both the *right and left*, from a point a quarter of an inch above where the ligature passed through, to within a quarter of an inch of the diseased mass.

On making a careful examination of all the parts and organs brought into view, preparatory to closing the incision, I discovered that a sac of the size of a pullet's egg was developed in the *right* ovary also; and that the whole organ was otherwise diseased. Accordingly, a double ligature (of two threads only) was passed through the broad ligament, and the remaining ovary was likewise removed.

The bladder was completely collapsed; the uterus perfectly smooth and healthy. The intestines were also in every part collapsed, and, therefore, now gave not the least trouble from protrusion. The parts exposed to the action of the air assumed a somewhat dusky hue; especially the uterus and bladder, which were of necessity longest exposed. The omentum was now carefully replaced; the operation, inclusive of the delays above specified, having occupied fifty-five minutes.

Closing the Incision.—The edges were accurately brought together, and retained thus, by five long and stout needles, equidistant from each other, and consequently one inch and a half apart, and which punctured all the

layers but the peritoneum. The insertion of the needles was a difficult matter, for reasons hereafter to be specified. The four ligatures were brought out through the incision at the nearest point, this being between the lowest two needles. No tent of any kind was used. The skin would not meet for some inches in the middle portion of the incision, on account of the pressure of the parts underneath from the needles; and was drawn together by points of suture an inch apart, penetrating it alone. Ligatures were applied around the needles in the usual way.

The incision, being thus brought together, formed a prominent ridge of the same length, and four inches wide; there being on each side of it a deep depression, from the empty state of the alimentary canal, and the collapsed state of the hitherto distended abdominal walls. Strips of adhesive plaster were applied across this between the needles; and a compress dipped in warm water, over which a dry one and a piece of oiled silk were placed, completed the dressing; and the patient was placed in bed at twenty-five minutes before six.

She is now (fifteen minutes before six) much exhausted, having suffered much from the introduction of the needles, as well as from the operation. Is deadly pale, and still very sick at the stomach. Pulse 70, very weak; respiration 18. Warm blankets are applied, and a little brandy and water are given, and a few drops of aq. ammoniæ, at intervals. On inquiring whether she still hoped to rally, and do well, she replied, "I have not a doubt of it, sir."

She was now attended constantly, for the following nine days, by three of my medical pupils, in turn: viz., Messrs. Conant, Fitch, and T. W. Wadsworth, who, during that time, kept an hourly record of her condition. From this, I extract the account which follows below. The temperature of the room is to be kept at 78° to 80°; she is to take the aqua ammoniæ, &c., till reaction is established; and forty drops of McMunn's elixir of opium, to be then given. Nothing but bread-water for diet; acidulated drinks; not to speak aloud, nor to move without assistance; catheterism every six hours; and the wet compress to be renewed every three hours, or before it becomes dry.

8 *o'clock* P. M. (two hours after operation). Pulse 112, soft. (N. B. Her natural pulse is about 90.) Respiration 21; countenance pale and cold. A little chilly at intervals. Is very faint, a common thing in her best health, when excited. Nausea still continues; has not vomited.

10 *o'clock.* Has been gradually rallying the past two hours. At 9, took a little wine-whey. Pulse now 112, fuller; respiration 26. Has slept a few minutes.

11 *o'clock.* Reaction is now complete. Pulse 112, and full; respiration 24. Sickness and faintness nearly gone. Drew ℥iij of clear, concentrated urine. She has "not the least doubt" she will recover. The sickness and

faintness recurred to some extent during the night; and her uneasy sensations were relieved by changing her position about once an hour. She slept very quietly about three hours in all. Vomited once; ℥iv healthy urine drawn at 5 A. M.

Sunday, 6 A. M. Patient wakes up refreshed, saying she has "rested better than on some nights before the operation." Pulse 120, full; respiration 24. (At 5 in the afternoon of to-day, the pulse fell to 105.) Dr. Jarvis took charge of the patient at 10 A. M., and I did not again see her until Tuesday P. M. She has no marked thirst nor heat of surface to-day. Less frequent changes of position are necessary. Occasional faintness, and slight pain in the course of the incision. Dr. Jarvis drew off ℥iv urine at noon, and ℥iv more at 7 in the evening.

Monday, 6 A. M. Was somewhat cool at 3 this morning, but no chill. Urine ℥iij, at 2 A. M. Has had a comfortable night; but has slept only between two and three hours. Pulse now 112; respiration 22. During the day, the former ranged between 109 and 114. At 9 A. M. ℥viii of urine; ℥vi more at 5 P. M.; and ℥viii also at midnight. Tongue is moist, with a very thin white coat. Had a severe deep-seated pain in right iliac region at 9 A. M.; at 12, a similar pain near the umbilicus; both relieved by change of position. Has a slight dull headache most of the day; and darting abdominal pains often recur. But she slept an hour before noon; has no thirst; no swelling or tenderness of abdomen; skin is moist and natural; and, on the whole, has had not an uncomfortable day.

Tuesday, 6 A. M. Wakes as from a good night's rest, having slept three and a half hours in all. The pulse fell to 93 at 5 this morning. Is now 104, rather weak. Urine ℥viii drawn at 8 A. M. and at 2 P. M.; also at 10 P. M. Less pain in the bowels than yesterday. Patient slept half an hour at noon; feels stronger; says she "could sit up, if allowed to do so." I saw her this afternoon—seventy hours after the operation. Pulse 112; resp. 23. It is a very warm day, and patient complains of the heat. Dressed the wound anew. Skin already united wherever edges are in perfect contact. Here and there a drop of pus around the sutures. No tenderness or swelling of abdomen. The catamenia returned this evening.* She has had a very comfortable day. Tongue slightly coated, and breath acid. To take an enema this evening.

Wednesday morning. Patient slept quietly from four and a half to five hours last night. Pulse fell to 86 at 4 A. M.; is now (9 A. M.) 96, full. Urine ℥vii at 6 this morning. At 11½ A. M. (eighty-five hours after the operation), she passed ℥viii of urine *without aid*, for the first time; and needed no instrumental assistance afterwards—this secretion remaining normal during her recovery. Patient has had no chill yet; "feels better than yesterday;" countenance cheerful and animated, as though nothing unusual

* And continued three days.

had happened. No effect from the enema. Castor oil ℥ij to be given at 2 A. M.

Thursday morning. Patient thinks she slept about five hours last night. "Feels stronger." Pulse 86; respiration 20. Changed clothing and bed-clothes at 10 A. M., for first time since operation.

I saw the patient at 3 o'clock P. M. Pulse 92; dressed the incision, and removed two of the five needles. The abdomen is now less concave on the sides of the ridge produced by the needles. Scarcely any suppuration. No tenderness or pain of abdomen.

Friday morning. Patient did not sleep at all last night, since the bowels have not been relieved by the oil, and a smarting where the needles were removed was felt most of the night. Pulse 94, at 9 A. M.; ranged from 83 to 104 during the day. Head feels pressed still. Skin hotter to-day; less so after an hour's sleep from 2 P. M.

Saturday morning (one week after operation). Patient took sixty drops of McMunn's elixir at two doses last night, and slept about three hours in all. Pulse 84; respiration 22, at 9 A. M. to-day; having just waked from half an hour's sleep.

I saw the patient at 3 P. M. to-day; changed all the dressings, and removed the three remaining needles. Skin firmly united, except at three points where the apposition had not been perfect. Very little suppuration. Appetite strong. A slight flatulent distension on right side of abdomen. Tongue slightly yellow. To take ℥ij more of castor oil this evening, and thirty drops of McMunn's elixir.

The record was hereafter made only once in three hours.

Sunday.—Patient slept about four hours in all last night. Is stronger than yesterday, and wishes to begin to help herself. Pulse at 3 P. M. is 90; resp. 22. A large enema secured the free operation of the oil in the evening, and she slept all night "as well as she ever did."

Monday, 9 A. M.—Pulse 88; resp. 18. Perfectly comfortable in all respects.

Messrs. Conant, Fitch, and Wadsworth discontinued their attendance from this time.

Tuesday, 2½ P. M.—I found the patient very comfortable. Thinks there are "not ten happier ladies in the U. S.; and is not sure she would exchange conditions with any one of them even." Has a very slight headache. To take an enema to-night, and oil to-morrow if required.

Pulse from 90 to 100 during last twenty-four hours. Tongue clean; skin natural; lips bright red; appetite excellent; no tenderness or unpleasant feeling in abdomen. I change all the dressings. Wound perfectly healed in every part, except where the four ligatures come out. Only a drop or two of pus around them.

On *Wednesday* she had some headache, the bowels not being relieved, and

she having slept but little on Tuesday night. Another dose of oil on Wednesday evening produced a free evacuation on Thursday, and she was very comfortable for forty-eight hours afterwards.

On *Thursday morning*, she sat up in bed for the first time.

Saturday, Oct. 5th, two weeks after the operation. I saw the patient at 9½ A. M.—Pulse 85 to 94, since my last visit; is now soft and weak. Has sometimes felt a tenderness at the points where the tumour was adherent; less of this to-day. Tongue a little coated; less appetite. To take a pill at night of pil. hydrarg. and extract. hyoscyami. Only a drop of pus in contact with the ligatures. The small ones yielded a little to gentle traction.

To take rich broth, beef tea, or any simple nutriment she may prefer. May be helped into a chair, when all tenderness of the abdomen has subsided.

Sunday.—Sat up in her chair half an hour for the first time, being the fifteenth day after the operation.

Saturday, 12th.—A letter from her sister of this date says, "My sister has been very comfortable since the last report, except during the last forty-eight hours, during which time she has at intervals had considerable pain in the right iliac region; but no tenderness on pressure, except at a point corresponding to the position of the ligatures on that side. She has sat up from one-quarter hour to an hour, as she felt inclined, every day this week. Her appetite is very good."

This pain continued four days (or to the 14th), but affected neither the pulse, appetite, nor tongue, and never afterwards recurred.

Wednesday, 16th (twenty-five days after operation). Saw the patient this afternoon. She has sat up from one to one and a half hour daily of late. Has gained flesh and strength since last visit. Has stood upon her feet, but not yet walked. Has a better appetite than usual when in her best health. Tongue clean; abdomen is now convex, and well formed. Bowels are moved once in forty-eight hours by a small dose of oil. Only three short straps were left across the incision, it now being firm enough to rely upon. A small compress is still retained to protect the ligatures. I apply gentle traction to them separately. They seem to lift the abdominal walls *alone*, but do not come out nor produce any pain—to be pulled upon very gently every day. Patient not to walk before the end of this week (four weeks in all), and then with a staff to incline the trunk forwards and relax the abdominal muscles.

30th (forty days after the operation). A report of this date says, "My sister is very well; she says she was 'never better in her life.' Has taken no medicine, nor felt any discomfort for the last fortnight. Dr. Jarvis says her countenance is better than for a year before, and he thinks she has gained ten pounds of flesh. She has not been out yet, but sleeps up stairs, and has resumed all her former habits. None of the ligatures have yet come away."

Jan. 6th, 1851.—A letter of this date from the patient herself, in answer to several inquiries by myself, gives a full account of her state at that time. And, since commencing this report, another letter has been received, stating that her health continues "precisely as then."

"My health (thanks to yourself) is perfectly restored. I have not had the slightest drawback since your last visit, except an attack, of which, at your request, I will give an account.

"The first ligature came away on the 7th of November, and the second on the 16th—both of them from the left side. The third came away on the morning of Nov. 19th, with perfect ease, and, unlike the others, brought the knot (loop), with it.* Half an hour afterwards, I was seized with a severe pain over the surface of the abdomen, and which, at the end of an hour, seemed to settle in the right iliac region, where the ligature was detached. Dr. Jarvis was called in at noon, and applied fomentations to the abdomen, and gave a dose of castor oil, and frequent doses of McMunn's elixir. In the evening leeches also were applied, the pulse then being 121. The pain occurred at intervals, and continued severe for twenty-four hours. In four or five days, I was quite well again. The day before, I had stepped into the garden to take up some bulbs, but was well guarded from exposure, and know of no cause for the attack. The aperture around the ligatures closed up at once. The cicatrix of the incision is now precisely five inches in length. The catamenia not restored. No disagreeable sensations in the parts connected with the tumour. I have danced once, and felt no inconvenience therefrom."

Description of the tumours removed.—1st. The large mass first removed now resembles, as a whole, in form and relation of parts (it being collapsed), the fœtal membranes enclosing the placenta—the more solid part corresponding to the latter. Its vertical diameter is 12 inches, its transverse 9½ inches; its original form being ovoid. The enclosed portion is oval and thin; being 6½ by 4½ inches in diameter, and 2½ inches thick.

The external surface of the *sac* is perfectly smooth and nacreous in appearance, except two inches square on the right side and a little less on the left (precisely where the "friction feeling" was perceived)—these surfaces being covered by the recently formed bands I had ruptured in breaking up the adhesions of the sac. An epithelium, but no distinct serous membrane, can be detected by one of Chevallier's largest microscopes. The Fallopian tube, $\frac{3}{16}$ inch in diameter, extends to the top of the solid tumour, accompanied by a large vein, and an artery of the size of a wheat straw. The protuberance on the solid portion, felt through the abdominal walls, was a distinct sac, as was supposed; its fluid having a specific gravity of 1023, and containing, like that of the large sac, a large quantity of albumen, and scales of cholesterine. The sac itself is $\frac{3}{16}$ inch thick.

* She does not account for the fourth ligature at all.

Its *internal* surface presents several large veins; and is covered quite extensively in patches by recently exuded plasma. In general appearance, it resembles a mucous membrane.

The weight of the whole mass is 2 lbs. 3 oz. avoirdupois.

2d. The *right* ovarian tumour is one and a half inch long by one and a fourth inch in diameter, consisting of a sac containing ʒiv of a reddish fluid; and the proper stroma of the organ, hypertrophied and indurated, and presenting a lobulated and warty appearance. Its whole weight is ʒx.

The preceding case has suggested the following remarks:—

I. So far as the writer is aware, Miss G——'s case is *unique*, as far as the successful removal of both ovaries at the same time by the large peritoneal section is concerned. It is also scarcely less singular, for the very slight disturbance of any kind from the operation. The *pulse* never rose above 120; never above 115 after the first twenty-four hours had elapsed, except for a few minutes on Sunday night. From Monday morning to Tuesday morning, it ranged between 93 and 114; Tuesday to Wednesday morning, between 86 and 112; Wednesday to *Friday* morning, between 88 and 104; Friday to Saturday morning, 83 and 100. It never rose subsequently above 97, and averaged 90—about her natural pulse. The *respiration* was 26 for half an hour when reaction was first established; and uniformly 23 or 24 during the first three days. It then continued at 22, till the pulse fell to 90; and then became 20. The *reaction* also was perfect in less than five hours, and was never excessive. Indeed, the patient may almost be said to have recovered without a single bad symptom; at least without any severe symptoms peculiar to such an operation; or which might not have occurred to one of her delicacy of constitution, from even a slight cause. Hence the *medicinal* part of the after-treatment was decidedly expectant. The suppuration could not have amounted to more than ʒiss in all, during recovery.

II. The almost unfailing aid, in the diagnosis of ovarian diseases, which is afforded by the present advanced state of pathologico-anatomical and surgical science, as compared with the obscurity resting over this subject till very recently, is worthy of remark. It is, however, impossible to form any rational conclusion as to the adhesions or non-adhesions of a sac thus filling the abdomen, without previously evacuating it by tapping. Even then, adhesions may exist without being detected. The "friction-feeling" is more distinctive than any other sign short of evident immobility of the sac; and was, I think, detected in this case on the first examination after (and in less than thirty-six hours after) the adhesions had formed.

The reason assigned for the absence, on the second examination, of the solid tumour felt per vaginam et per rectum eleven days before, proved to be correct. The fluctuation perceived from these passages at the first examination was produced by the fluid in the large sac, which, being less distended at the second, did not fall so low as to be reached. Thus the inferences from the

positive signs at first, were rightly regarded as being confirmed by their absence afterwards—the circumstances having changed.

III. The temperature and hygrometric state of the air in the room at the time of the operation are very important matters. Certainly, the peritoneal surface is *more nearly* in its natural condition when exposed to a *warm and damp* atmosphere, than if the latter be cool or dry, or both. A still higher temperature than 80° would probably be better for the serous membrane; but it could not long be tolerated by the lungs either of the patient or the operator. It was observed that the surface longest exposed became somewhat livid from incipient congestion; and, had even a less protracted exposure to a dry or a cool atmosphere occurred, I doubt not this effect would have been still more marked, and a decided congestion, which is but a single step from inflammation—from peritonitis—might have occurred. Moreover, a sudden change of temperature, even though a slight one, *after* the operation, and whether general or local, is replete with danger. Hence the temperature was kept at 78° to 80°, till all danger of inflammation had disappeared; and the warm water dressing was kept constantly upon the abdomen, as long as any dressing was needed.

That the alimentary canal be also empty and collapsed at the time of the operation, is an important consideration; since thus protrusions are avoided, or easily reduced if they occur. Hence the propriety of a dose of oil thirty-six hours before the operation, and fluid nutriment afterwards.

IV. Several difficulties I have not seen adverted to, in reports of this operation, occurred. 1st. The skin, being very tense, retracted about three inches when divided, and also drew the next layer (one and a quarter inch thick, as before stated), as it was divided, down to an almost level surface; and thus rendered it impossible to keep the precise position of the middle line in the eye, through the whole length of the incision—nine inches. 2d. The fascia transversalis and parietal peritoneum were so atrophied by pressure as not to be recognized as distinct layers either during or after the operation, instead of being thickened as usual. 3d. Violent efforts to vomit, *i. e.*, spasmodic action of the abdominal muscles, have been not unfrequent in other cases; and may not, therefore, in this, have been occasioned by the anæsthetic. 4th. The thickness of the abdominal walls (one and a quarter to one and a half inch) produced much difficulty in coaptating the edges of the incision. Large needles, two and three quarter inches long, were required; they must also be curved, and therefore annealed; and thus their points were spoiled. Still the latter must be carried through the walls obliquely, so as to pass between the abdominal aponeurosis and the peritoneum, while, at the same time, the former was hardly thicker than stout letter paper, and the latter not certainly recognizable at all. Still the risk of peritonitis was not partially enhanced by the delays thus produced; since they occurred either while the sac still protected the peritoneum, or while the wound was being closed.

V. The appearance of the catamenial discharge,* seventy-two hours after both ovaries had been removed, and its continuance for three days, appears, at first sight, to contradict the idea, now generally entertained by physiologists, that these organs originate the *nisus* which thus manifests itself. I should, however, consider the discharge, under such circumstances, as a mere uterine hemorrhage, resulting from the congestion of that organ produced by the operation; and as, therefore, being a most salutary phenomenon, and a highly favourable symptom. A patient on whom I operated, three years since, for an extensive laceration of the perineum, had a similar phenomenon occur on the third day afterwards; which also continued three days, and prevented the complete success of the operation. In that case, also, I think the exciting cause of the hemorrhage was of the same general character; the preceding regular period having ceased a week before the operation. I shall expect to learn that the theory above alluded to is confirmed by the future history of the present case.

The fact that the urine became free (℥viii every six hours) within forty hours after the operation, and continued so uniformly afterwards, was regarded as highly favourable at the time; and this, together with the fact that, at the end of eighty-five hours, she evacuated the bladder without instrumental assistance, was thought to be inconsistent with the idea that peritonitis was then impending.

VI. The pain complained of October 5th was probably produced by the patient's leaning upon her elbow in bed; and that in the right iliac region, which occurred on the 10th, and continued four days, I should attribute to her efforts as she sat up longer each day, and to the pressure on the uterus, and perhaps also on the ligatures directly of the small intestines, while thus erect in bed. A somewhat constipated state of the bowels is another element in the causation perhaps worthy of notice.

The violent attack of pain on the 19th of November may or may not have been excited by the removal of the last ligature that morning. I incline to the opinion that it *was* thus excited, though no undue force was applied to the ligature, and it is improbable that the peritoneum was at all implicated. It appeared to me possible that some, at least, of the ligatures were adherent to the abdominal walls alone, at my last visit, five weeks before (October 16th). But, in regard to the two ligatures first brought away, this opinion is shown not to hold, since they were both *untied* before they left the pedicle. The last ligature, however, *slipped off*, as was shown by the loop still remaining whole; and, therefore, might have been retained by granulations in the abdominal walls for days previous to its detachment. I judge this was the fact, and that a nerve being also implicated in its detachment, accounts for both the superficial character of the pain, and the rapid culmination of the attack. I am, however, by no means tenacious of this explanation.

But what became of the fourth ligature, of which no account is rendered

* Its last regular appearance had been ten days before.

by the patient? I doubt not that it was removed together with one of the larger ones. In all four of the ligatures, there were sixteen threads of silk. The last included two of these; and I doubt not one of the preceding was made up of eight threads, and the other of six. Two ligatures, thus removed together, would of course lie side by side when drawn out, however distant their internal extremities may have been before; and the patient could not be expected to remember to count the threads as they were removed. I shall doubtless request the next patient to preserve them for subsequent inspection.

VII. The pedicles were divided thus,  : the *oblique* lines representing the cut edge, the circle (○) the puncture made by the needle, and the dotted line the level of the ligatures—in order that the loops might *slip off* on applying traction at the proper time, and thus the ligatures be the sooner detached. It appears, however, that only one of them became detached in that way, the rest having been previously *untied.* The one that *slipped*, also, was the last to come away; but the supposition has already been hazarded that it may have left the pedicle, and probably did, some days at least before it was detached. Whether, therefore, my idea as to dividing the pedicle will prove of any practical value, still remains to be decided. And whether the loop usually slips off, or cuts out, or becomes untied, after this operation, is a question previous reports do not enable me to decide, and which I now have under investigation.

VIII. The success of the operation I attribute to the fortitude and confidence of the patient; the comparatively slight adhesions of the diseased mass; the temperature, &c., of the room at the time and subsequently; accurate coaptation of the divided abdominal walls; and the judicious after-treatment of Dr. Jarvis, seconded by the faithful attentions of the three young gentlemen before named. I am positive that as much care and skill are necessary in closing the incision properly, as in performing the preceding operation.

Whether the operation of ovariotomy is ever justifiable, is a question which would certainly be out of place here. It is the writer's opinion that, if the patient's general health is rapidly failing (but not already too far prostrated), and the tumour is found to be not extensively adherent, so far as all the known methods, taken *together,* can decide that question, the operation *is* justifiable; *provided* the patient, after fully understanding its nature, strongly desires to have it performed, and has strong hopes of recovery therefrom. But it is an operation never to be urged, nor to be undertaken by an operator whose care does not include the minutest particulars, both prior and subsequent to its performance, which can affect its results.

And I cannot close without alluding to the obligations under which the medical profession in our country has been placed, by the full and precise reports of his now numerous operations for the removal of ovarian diseases, which Dr. W. L. Atlee has given from time to time in this Journal. But for these, my patient might perhaps not have been rescued from an early

death. For only accurate and minute reports of such cases are of any practical value to others; and this is the writer's apology for the length of this communication.

Dart. College, *Feb.* 1851.

Note.—It is a fact, certainly not without interest, that the first patient on whom the operation of ovariotomy was performed in this country was an *aunt* of Miss G. (though by *marriage* only), whose case has just been detailed. The operation alluded to (being the *minor* operation) was performed on the 5th of July, 1820, by Dr. Nathan Smith, Professor of Surgery in Dartmouth College, and was successful. The patient was a Mrs. Strobridge, of Norwich, Vt.. ætat. 33.

For an account of the case, see "Medical and Surgical Memoirs," by Nathan Smith, M. D., Baltimore, 1831.

The *year* is singularly enough omitted in the report of the case. I have ascertained of Dr. H. Hatch, of Burlington, Vt., who was present at the operation, that it was performed thirty years ago last July.—E. R. P.

Art. XII.—*Cases in Surgical Practice.* By R. H. McIlvaine, M. D., Charlotte, N. C.

Case I. *Adipose Sarcoma, involving the deep structures of the thigh.*—M. H., æt. 14, has been afflicted since birth with an abnormal growth upon the right thigh. When first noticed, the tumour was about the size of a pigeon's egg, situated upon the outer side of the thigh, about midway between the groin and the patella. It has been constantly enlarging ever since. Its present appearance is as follows: Commencing at a point about one inch below Poupart's ligament, it extends to within about the same distance of the upper margin of the patella, and from a line on the inside of the thigh, corresponding with the track of the femoral artery, to about the outer edge of the vastus externus muscle, thus encircling about three-fourths of the largest part of the thigh. The following are the dimensions of the tumour, ascertained by comparing the circumference of the right with that of the left thigh.

	Right.	Left.
One inch above the patella, ...	12 in.	$9\frac{5}{8}$
Junction of middle and lower third, . .	$15\frac{1}{2}$ "	$10\frac{3}{4}$
Middle of the thigh, ...	$16\frac{3}{4}$ "	$12\frac{3}{4}$
Junction of upper and middle third, . .	$15\frac{1}{8}$ "	13

The motions of flexion and extension of the leg show that the tumour is attached to the *quadriceps femoris* muscle, outline of the tumour distinctly marked above and below, but on the sides it is impossible to determine accurately its extent. Diagnosis *simple adipose tumour.*

Oct. 7th, 1848.—I proceeded to remove the tumour, assisted by Drs. Williamson, Strong, Hutchinson, Gibbon, Clawson, and S. F. Gilmer. The patient being first placed under the influence of chloroform, I made an incision from the upper to the lower margin of the tumour, in the course of the

rectus muscle, penetrating into the substance of the tumour. This was joined by another commencing and ending at the same point, and curving outward so as to include a piece of integument about two inches in width at the widest part. The sartorius muscle appeared, covering the upper and inner part of the tumour, and thinned out to about three inches in width. Turning out the tumour from under this muscle, I proceeded to follow it to its attachments between the crureus and vastus externus. These attachments were very extensive and firm, and required for their separation a dissection deep into the muscular substance of the outer part of the thigh. The tumour was completely separated in six minutes. But little blood was lost. No artery required ligation. The wound was dressed with five sutures and adhesive straps. Union by first intention took place throughout the greater part, but the cure was retarded by a succession of abscesses, beneath the vastus externus muscle, which discharged large quantities of grumous pus, mixed with the detritus of the wound. These were followed by troublesome sinuses, one of which was laid open across the belly of the vastus externus muscle. The cure was perfect by the 1st January, 1849. No muscular weakness remaining.

Developed originally, as this tumour seems to have been, beneath the fascia lata, it appears to have gradually extended in those directions in which there was least resistance until it involved that membrane, so that it was distinguishable only at the margins of the tumour. It was attached extensively to the sartorius, rectus, crureus, and vastus externus muscles. Weight three and a quarter pounds avoirdupois.

Case II. *Adipose Tumour.*—Mrs. S., æt. 50, has been afflicted for fifteen years with a tumour upon the back of the left shoulder. At present, it extends from within two inches of the spine to about the insertion of the deltoid muscle upon the arm. Gives no pain, but from its size and weight is becoming exceedingly inconvenient.

April, 1847.—I proceeded to remove the tumour, assisted by Dr. Butt of Lincolnton, and Mr. (now Dr.) J. A. Shuford, medical student. The operation was commenced by an incision extending from near the spine of the third dorsal vertebra to the lower margin of the tumour upon the arm. This was joined by another commencing and ending at the same points, and including between them a large piece of integument. The tumour was then turned out, being found to adhere slightly to the deltoid and long head of the triceps muscle. The operation was completed in one minute. No vessel required the ligature. The wound was closed with sutures and adhesive straps, and in ten days the cure was perfect.

The morbid mass weighed six pounds, and presented all the characters of the simple adipose sarcoma.

Case III. *Strangulated Inguinal Hernia — Operation — Reduction impeded by enlarged Mesenteric Glands—Recovery.—Oct. 11th*, 1849. Called to Jim, a negro, æt. about 60, property of Daniel Mills. Patient has a large inguino-scrotal hernia of the right side, which has come down occasionally for a number of years. On the evening of the 7th instant, the hernia came down, and the patient not being able to reduce it as usual, Dr. Ardry was sent for. The doctor made repeated attempts, during the next twenty-four hours, to reduce the protrusion, but not being able to succeed, Dr. Williamson was called. At Dr. W.'s suggestion, the tobacco enema was administered, and during the state of extreme relaxation which followed, a vigorous effort was made at the taxis, but without success. I was then sent for, with a view to operation.

I found the patient with a good pulse, free from excitement, with only occasional efforts at vomiting; bowels obstinately costive; no additional efforts to return the bowel were deemed advisable, and at half past ten o'clock A. M., I proceeded to operate, assisted by Drs. Ardry and Williamson, and Mr. Parks, medical student. The several coverings of the hernia were carefully divided upon the grooved director, until the sac was exposed; upon opening this, about ℥j of bloody serum escaped. The bowel was of a light chocolate colour. It proved to be a piece of the small intestine about twelve inches long, with its mesentery, in which were a number of enlarged glands. The stricture was divided upon the finger by means of a probe-pointed bistoury; an attempt was now made to return the bowel, but without success. The stricture was further divided; but still the intestine could not be returned. The mass of enlarged glands seeming to form a body too large to pass through the opening, the efforts to reduce were continued, with intervals of rest, for about three-fourths of an hour, when, after again enlarging the opening very considerably, the hernia was reduced. Great fears of inflammation were entertained from the amount of handling to which the parts had been unavoidably subjected.

The wound was then closed, and the patient put to bed, having been upon the table about one hour. Ordered ol. ricini f℥ss, with tinct. opii gtt. x. No appreciable change in the pulse; patient not prostrated by the operation. I here resigned the case to the care of the attending physicians.

Oct. 25th.—Dr. Ardry reports that, for forty-eight hours after the operation, the symptoms were threatening. On the second day, the abdomen was tympanitic, the pulse feeble, quick, and frequent, no passage from the bowels. Large injections were successful in relieving the bowels, after which the case put on a more favourable aspect, and the patient was soon convalescent.

Case IV. *Pseudo-Membranous Croup — Tracheotomy — Death. — Dec. 20th,* 1849.—Called to W., æt. two years, in the advanced stage of croup; the total loss of voice, and peculiar cough, convinced me that it was of the pseudo-membranous variety. Administered at once ant. et pot. tart. gr. j, with pulv. ipecac. gr. x. This produced emesis at the end of half an hour, with the aid of a feather in the fauces. The patient appeared somewhat relieved, and I left for a few hours, directing repeated doses of syrup. scillæ comp., if the symptoms became aggravated.

On my return at four o'clock P. M., found my patient much worse, and during the suffocative paroxysms the danger of dissolution seemed imminent. I immediately administered a very active emetic, and, after waiting in vain for its operation for more than half an hour, I proposed, as the only hope, to perform tracheotomy. The consent of the parents was readily obtained, and at half past five P. M. I proceeded to operate. I had a bad light, inexperienced assistants, and, the child being fleshy, I was somewhat embarrassed in the operation, but happily succeeded in establishing a false opening in time to prevent suffocation, the danger of which had become extremely imminent. Indeed, when the trachea was opened the child seemed at its last gasp. I maintained the opening pervious by means of a tenaculum and probe, until the oozing had ceased, and then, clipping out a small portion of one or two of the rings with the scissors, the child was enabled to breathe freely without assistance.

The patient rallied favourably, and seemed much relieved for several hours. Gradually, the breathing became more difficult. The introduction of a probe, wrapped with lint and dipped in a solution of nitrate of silver or in simple

water, afforded temporary relief. Toward morning, it became evident that the disease had extended below the opening, and although small bits of false membrane were coughed up, the relief was only temporary, and at 6 A. M. it became evident that all hope must be abandoned. The patient expired of suffocation at 10 A. M., sixteen hours after the operation.

Case V. *Encysted Tumour, containing Feces.—Dec.* 1849, consulted on the case of Spencer, negro, æt. 30, the subject of anal fistula for about ten years. The patient reports that, about seven years ago, a tumour appeared between the anus and point of the coccyx. When first discovered, it was about the size of a hickory nut. It continued to increase till about four years since. Has never given much pain till about a month ago, when it broke and discharged "matter" for a few days, and then cicatrized. At present, the tumour is about the size of a large duck's egg, situated in the mesial line, immediately in front of the point of the coccyx, not tender on pressure, and exhibits a cicatrix about the centre of the prominence—the seat of the ulceration alluded to. Diagnosis, *adipose sarcoma.*

Feb. 23*d*, 1850. I proceeded to remove the tumour, assisted by Drs. Dunlap and Hutchison. The first incision laid open a cavity filled with *feces*, which I proceeded to turn out. I then explored the cavity, with a view to discover the opening through which the fecal matter had entered, but could detect no communication with the rectum. Satisfied that the cavity was a closed sac, the indication was plain, and I proceeded to dissect it out. This was accomplished without any wound of the continuity of the sac, except a very small snip with the point of the scissors. It was lined with a membrane having very much the appearance of the inner lining of the turkey's gizzard. The wound was closed with sutures, and dressed with a compress. The cure was accomplished in a few weeks principally by granulation. The fistula was operated on shortly after, and the patient discharged cured on the 26th March.

The origin of this tumour I suppose to have been as follows: An ulcer having perforated the coats of the rectum, fecal matter was forced out and impacted in the cellular tissue between the rectum and coccyx. Here, not giving rise to sufficient irritation to secure its discharge by ulceration, it became encysted. In the course of time, the original ulcer cicatrized, thus closing the communication between the rectum and the sac. This view is confirmed by the existence of a distinct cicatrix at the upper part of the sac, at the point of its closest connection with the rectum.

REVIEWS.

ART. XIII.—*Report of the Sanitary Commission of Massachusetts, made by the Legislature in* 1850. Printed by order of the Legislature. Boston: Dutton & Wentworth, State Printers, 1850. 8vo. pp. 544.

THE subject of a sanitary survey is not entirely new in this State, although it may not be familiar to all of its people. It was first brought before the American Statistical Association in the spring of 1847. That society referred it to a committee, with orders to prepare a memorial to be presented to the legislature, asking that measures be taken to ascertain the sanitary condition and resources of the commonwealth, and setting forth the reasons for, and advantages of, such an undertaking. This memorial was accepted by the association, and ordered to be presented to the legislature by the same committee. This was done in January, 1848. The House of Representatives referred the matter to the committee on the judiciary, who, after giving the friends of the measure a patient hearing, concluded that, as the subject was new both to the legislature and to the people, it would be inexpedient to undertake the proposed survey until some pains should be taken to inform the public of its plans and advantages; they therefore advised that a large edition of the memorial of the Statistical Association be printed for general distribution, and that then the whole matter be referred to the next legislature. The memorial was printed as House Document No. 16 for 1848, and very generally distributed through the State.

The Massachusetts Medical Society, at its annual meeting in May, 1848, took this matter into consideration, and referred it to the counsellors, to take such action as they might deem proper. The counsellors voted to memorialize the legislature, praying them to grant the petition of the Statistical Association. In January, 1849, the counsellors sent to the legislature a memorial, urging, at considerable length, this measure upon the government, and giving the reasons for which it seemed to them it should be adopted.

This memorial of the medical society was referred to a select committee of the legislature; and on their recommendation a large edition of this document, and the memorial of the Statistical Association of 1848, were printed for distribution among the members and people. At the end of the session in May, a resolution was passed authorizing the Governor "to appoint three persons to be commissioners, to prepare, and report to the next general court, a plan for a sanitary survey of the State, embracing a statement of such facts and suggestions as they may think proper to illustrate the subject." The commissioners were to have two dollars a day for the time they should be employed, and also to be paid for their expenses of travel, stationery, and postage. They were authorized to expend fifty dollars in books on this subject, which should be deposited in the State Library. Five hundred dollars were appropriated to meet the whole expenses of this commission.

The governor appointed Lemuel Shattuck, Esq., of Boston, Jehiel Abbott, M. D., of Westfield, and Nathaniel P. Banks, Esq., of Waltham, as members of this sanitary commission.

The labouring oar of this whole matter fell principally upon Mr. Shattuck, the chairman, who made the inquiries, and wrote the report, with the aid of his associates. Their report was presented to the legislature in April, 1850. It was then ordered to be printed. This was finished in December, 1850, and offered to the legislature in January, 1851, for their consideration and further action.

Thus it is seen that this matter has been before three successive legislatures; and after three years of urgency from the friends of the measure, it is matured so far as to have a plan brought forth in a tangible shape, and offered to the fourth legislature for their adoption. The legislators of Massachusetts surely will not be accused of any rashness or indiscreet haste in undertaking to ascertain the sanitary condition of the people of that intelligent and generous commonwealth.

This report of the commission is printed in an octavo volume of 544 pages, in the style of the reports of the Natural History Survey, and is now ready for distribution, or disposal otherwise, at the order of the general court.

The commission, in their plan, have not confined themselves to the original purpose of the proposers of this measure, which, like the British inquiries of a similar nature, was merely to inquire into the actual sanitary condition of the people, and ascertain the various influences that acted, for good or evil, upon their health, and when those facts should be made known, further plans would be suggested and adopted for the future well being and health of the people. But they have examined and discussed at great length all the direct and collateral topics connected with the matter of general and public health, and shown with great clearness the advantages that will result from the investigation of the connection between outward circumstances, domestic conditions, and personal habits, and health and life.

The report first contains a history of the sanitary movements abroad, and shows what has been done, and with what advantage, in other nations. Going back to ancient times, Mr. Shattuck informs us of the sanitary legislation and customs of Greece and Rome, and, coming down to modern times, he gives us a similar history of Great Britain, France, and Germany.

Very active and effective measures have been taken by some of the European governments to ascertain the sanitary condition of their people, and in all cases they have revealed such a state of things, in their outward circumstances or in their domestic life, as to leave no doubt that many of the causes of sickness and death existed and were removable, and consequently that much of the sickness might be prevented and many deaths postponed.

The report quotes from the sanitary documents published in Great Britain, and shows that there are frightful differences in the vitality of people in different districts and in different conditions of life. There are remarkable differences, in this report, between the town and country. Thus, it is ascertained, from a very extensive survey, covering about seven millions of people, that the annual deaths are, in the city districts, 27,073, and in the country districts 19,300, among one million of persons living in each class of places. The rate of mortality was one in 37 in the city, and one in 52 in the country. Here, then, is an annual excess of 7773 deaths in each million of persons living in the large and dense towns over the number of those who die in the country, in an equal population; and this excess must be chargeable to something connected with the density of population.

Some diseases prevail more, and are more fatal, in the towns than in the country. In a million living in each class of places, the mortality (average of four years) was as follows:—

	City.	Country.
Total deaths	27,073	19,300
From Consumption and scrofula	4,515	3,761
" Small-pox	1,045	507
" Measles	914	354
" Scarlatina	988	478
" Typhus	1,254	998
" Epidemic and contagious	6,013	3,422
" Teething	616	120

There are also great differences of mortality in the different parts of the same city, as, according to Mr. Chadwick, in London, in St. George's, Hanover Square, the average age at death is of the gentry 45, and of the labourers 27 years, while in St. Giles the ages are of the gentry 50, and of the labourers 17 years.

These last differences are connected with the supply of water, cleansing the streets, and ventilation of the streets and dwellings. Dr. T. Southwood Smith says that, "where fever is frequent, there is uniformly a bad drainage, bad sewerage, a bad supply of scavengers, and a consequent accumulation of filth." "If you trace down the fever districts on the map, then compare that map with the map of the commissioners of sewers, you will find that, where these commissioners have not been, there fever is prevalent, and on the contrary, wherever they have been, there fever is comparatively absent."

"Dr. Lyon Playfair calculates that, for one unnecessary death, there are also 28 cases of unnecessary sickness;" consequently, there are annually 217,668 cases of unnecessary sickness in each million of inhabitants of the large towns.

After reviewing the sanitary movement in Great Britain, Mr. Shattuck says that it is thus proved—

That the annual deaths in 10,000 people are 153 in the best, and 358 in the worst districts.

That the various forms of diseases are created, aggravated, and propagated by the narrow streets, crowded houses, filth, and the foul air that proceeds from decomposing animal and vegetable matters, whether in town or country.

That diseases and death are more frequent in the cities than in the country, and more in the narrow streets and crowded houses than in the wide and open streets and ample houses of the same city; and that this excess of disease and mortality falls mostly upon infants and persons between 20 and 30 years of age.

That the longevity of persons in bad, is 5 to 25 years less than in good situations, and that the former have a lower condition of life, less health and strength, and less productive power than the latter.

That these differences of life and death are removable by the removal of the noxious agencies and circumstances.

That the annual mortality of Great Britain might be reduced from one in 44 to one in 50 by the removal of these noxious causes.

That children born and trained amidst these noxious influences have a lower degree of physical, mental, and moral power, and hence they are comparatively feeble, sick, idle, improvident, vicious, and short-lived.*

It is now very natural to inquire, whether similar conditions and circumstances do not exist, to a greater or less extent, in this country, and whether they do not produce the same depression of life, and the same excess of disease and mortality, in Massachusetts as in England.

* Report, p. 46, &c.

The sanitary legislation of Massachusetts extends as far back as the year 1692. From that time to the present, laws have been enacted for the prevention or the removal of nuisances, &c., which might interfere with public health; for the establishment of drainage and sewerage, with reference to small-pox, and other contagious diseases, to insanity, and quarantine; and for the election of boards of health.

The whole sanitary legislation of this State, past and present, has been unstable, uncertain, and subject to many changes, which are sometimes made without apparent good reason. The laws in regard to this subject, as they now stand, form a very imperfect system, and are inadequate to the purposes for which they were made. They have been subjected to so many alterations, to repeals, partial or entire, that it is not now easy to determine what is in force.

In order to remedy this matter, the commission propose to establish an entire new law or code of laws, which shall cover the whole ground of health, sanitary police, and everything which has a direct or indirect connection with man and his powers of body.

Mr. Shattuck gives a succinct history of the epidemics that are known to have prevailed in New England since its first settlement. But, of course, this history is very imperfect for the want of due observations and records. This history is confined to the epidemics which have especially attracted attention, and excited alarm, and have had an observer willing to write their record. But there have doubtless been many epidemics that have had no observer to notice them, and no historian to record them and bring their history to us.

Epidemics must constitute only a part of the diseases that affect the people. Sporadic diseases, of every sort and everywhere present, in some form or other, are the principal destroyers of the health and the life of man. They have no record. It is not known how frequently they appear, nor how fatally they operate.

"For the last forty years, notwithstanding the mass of medical literature that has been published, less definite information has been obtained concerning epidemics than in the previous periods. The almost entire neglect of records, prior to the adoption of the registration system, renders it difficult to give anything approximating to an accurate view of the subject. If a careful examination were made into the history of each town, many important facts might be gathered. But it is curious and lamentable to observe, in looking over our published local histories, how little attention has been paid to this matter. *The history of the health of the people* should be regarded as the most important part of history. Yet it has generally been considered unworthy of notice, or, if noticed at all, merely among the incidental matters of little consequence."*

This is the object of the proposed sanitary survey: to ascertain the diseases that appear and prevail in the various districts and situations, their frequency and intensity, their fatality, and the circumstances and habits that are connected with them.

Without pretending to give a complete history of these matters, or even approaching it, Mr. Shattuck alludes to the influences of various circumstances upon the production and results of disease. He states a few facts in regard to seasons, occupations, and domestic conditions, to show that they certainly have some, and probably great, influence on human health and life, and to show that these matters are worthy of further and minute inquiry, in order to determine exactly the measure and manner of their influence, and whether they can be modified or controlled by the art of man.

* Report, page 80.

So far as can be determined from a comparison of the Registration Reports from the rural districts of Massachusetts for seven years, with the bills of mortality of Boston for ten years, the country is the more healthy in the summer, and the city in the autumn, both nearly alike in the winter and the spring. August and September are the most fatal months in the city, on account of the greater prevalence of diseases of the digestive organs. September and October are the most fatal months in the country, on account of the greater prevalence of fever.

The nature of the occupation has doubtless much influence on health and life, but to what extent remains to be determined by further investigation. The seven annual Registration Reports of Massachusetts give tables of the average ages of males engaged in several professions, who were over twenty years old at death. These are condensed in the report into one table,* which we here quote :—

Deaths.	Occupation.	Average age.	Deaths.	Occupation.	Average age.
4737	Farmers	64.89	46	Bakers	46.69
39	Hatters	58.79	81	Cabinet-makers	44.80
110	Coopers	57.39	73	Stonecutters	44.46
114	Clergymen	56.64	17	Paper-makers	44.29
55	Lawyers	55.47	902	Shoemakers	43.41
137	Physicians	55.	1609	Labourers	42.79
287	Blacksmiths	54.49	1061	Seamen	42.47
613	Carpenters	51.16	110	Painters	42.36
323	Merchants	50.73	138	Fishermen	41.63
65	Tanners and Curriers	49.90	115	Manufacturers	40.48
135	Masons	48.55	110	Mechanics	37.20
213	Traders	46.79	34	Printers	36.91

These few facts render it very certain that there is a difference in the value of life in the different occupations, and very probably, that this difference is constant.

The diseases or causes of death differ in different situations, and especially in city and country. Mr. Shattuck has analyzed the causes of 57,484 deaths, in the rural districts of Massachusetts, from 1842 to 1848; and of 25,795 deaths in the city of Boston from 1840 to 1849.†

Among 10,000 deaths, in each place or class of places, from known causes, there died of the various classes of disease—

	Country.	City.
Zymotic or endemic Epidemic and contagious	2755	3159
Of uncertain seat	1299	1398
" Nervous organs	905	927
" Respiratory "	2959	2240
" Circulatory "	192	173
" Digestive "	490	1221
" Urinary "	45	30
" Generative "	114	158
" Locomotive "	51	53
Skin	16	23
Old age	768	246
Violence	406	372
	10,000	10,000

* Report, p. 87.

† Report, p. 90.

There appear to be many more deaths from the zymotic diseases, and from diseases of the organs of digestion and generation, in the city than in the country, but there seem to be many more deaths from pulmonary diseases and from old age in the country than in the city. The other classes of causes present no very marked difference in their effects upon these places.

The proportion of deaths to those from all causes was greater from 48 and less from 44 of the specified causes in the city than in the country.

These differences were the greatest from the following causes.

Deaths from certain causes among 10,000 from all causes:—*

	Country.	City.		Country.	City.
Dysentery	420	370	Hooping cough	89	133
Fever, typhus	909	645	Measles	73	228
Apoplexy	102	73	Small-pox	19	134
Paralysis	166	79	Thrush	2	38
Consumption	2389	1471	Atrophy	36	201
Old age	768	246	Debility	28	103
Colic	26	5	Hydrocephalus	212	367
Peritonitis	12		Pneumonia	441	634
Drowned	142	83	Enteritis	155	205
Cancer	123	56	Teething	42	219
Cholera	52	281	Child-birth	104	151
Fever		65	Intemperance	45	78

These are not stated in the report as the sum of all the knowledge that is desirable or obtainable, nor as establishing any law, but only as indications of differences, which should lead to further and more varied inquiry. But the facts, so far as known, lead these commissioners to state—†

That there is a great difference of life in various localities, circumstances and conditions of men and society.

That there are causes of unnecessary sickness and premature death here among us as well as in Europe.

That there is need of legislative action to provide a remedy for the removal and the prevention of these evils.

That typhus fever, cholera, dysentery, small-pox, and other epidemics—consumption, and other fatal diseases—constantly or frequently prevail in this State.

That these active causes of diseases are increasing among us.

And that a thorough investigation is needed to ferret out the whole extent and all the circumstances of disease and mortality; and to ascertain the exact relation of these events to other events and circumstances that may seem to be their causes. There is also needed a more appropriate and more effective system of legislation, which shall reach all the circumstances of life, and all the causes of sickness and death, and provide for the protection of the one, and the prevention and the removal of the other; and thus, by the ever present and strong arm of the government, secure to the people the means and opportunity of enjoying the highest degree of health and the longest life consistent with their nature and constitution.

For this purpose, the commissioners propose to repeal all present laws respecting health and sickness, and re-enact all that are useful and adapted to the wants and conditions of the present time, and add such others as are needed to complete the sanitary code, and establish a perfect sanitary police in this commonwealth.

* Report, p. 90, &c. † Report, page 103.

The proposed law fills fifteen pages,* and is divided into forty sections. It embraces a plan for obtaining annual reports of the sanitary condition of every town and city, for the registration of births, marriages, and deaths; for the detection and the removal of nuisances; and for the regulation of burials.

Sec. 1.—Provides for the appointment, by the governor, of seven persons, who, together with the Governor and the Secretary of the Board of Education, shall constitute the State Board of Health. The seven are to hold their offices seven years, but one is to go out, and his place to be filled by re-appointment, or by another, in each year.

Sec. 3.—Provides for the election of a Secretary of this Board, who shall be the principal executive officer.

Sec. 4.—Requires that the Board of Health execute the sanitary laws of the State; decide all sanitary questions proposed to them by the State, or by towns; advise as to the location of public buildings; visit, and superintend the sanitary condition of the public charitable institutions; instruct the local Boards of Health as to their powers and duties; superintend the decennial enumeration of the people of the State according to the constitution; and make a report in each year to the legislature of the sanitary condition of the State. They are authorized to purchase books relating to public health, to the amount of fifty dollars annually, for their use and for that of their successor in office.

Sec. 6.—Requires the Secretary to keep the accounts of the Board; to make a sanitary survey of any town or district when directed by the Board; to superintend the registration of births, marriages, and deaths; to superintend the decennial enumeration of the people, and prepare the abstracts from the returns of population; to take charge of all the local reports from the several towns; to report to the Board annually the sum of the sanitary information received, and to diffuse among the people all this information, so that each town and family may profit by the experience and the wisdom of all the rest.

Sec. 8.—Provides for the appointment of local Boards of Health by the mayors and aldermen of the cities, and by the selectmen of the towns, in each of these several places.

Sec. 9.—Requires these local Boards to execute the sanitary laws of the State and the orders of the general Board, and, as far as possible, prevent sickness and prolong life by the removal of the causes of disease.

Sec. 11.—Authorizes these local Boards to purchase sanitary works for the benefit of their respective towns and cities.

Sec. 12.—Requires the local Boards to appoint a Secretary, and authorizes them to appoint a Medical Health Officer and a Surveyor, and to fix the compensation for these persons.

Sec. 13.—Requires the Medical Health Officer to ascertain the existence of diseases of various kinds, to compare their prevalence and results in various seasons and in different years, and in the different districts and classes of society; to ascertain any atmospheric, local, or personal causes of the temporary increase or decrease of disease and mortality; to point out nuisances, or other causes of disease; to suggest remedies for sanitary evils, and in all other ways execute the sanitary orders of the local Board.

Sec. 15.—Requires the Surveyor to prepare a map of the town, or of any of its parts, showing the location, level, and grades of the roads and streets, mill-ponds, watercourses, and seats of nuisance, and to prepare plans of drainage and sewerage.

* Report, page 307 to 321.

Sec. 16.—Authorizes the local Boards to make regulations, for ascertaining
The causes of all the deaths in the town.
The prevailing diseases in the towns, and their causes.
The amount of sickness in different classes of people.
For preventing or mitigating diseases.
For affording medical relief to persons diseased or threatened with disease.
For abating nuisances.
For restraining persons or articles affected with the small-pox contagion.
For establishing hospitals for contagious diseases.
For constructing sinks, ash pits, privies, cesspools, drains, and sewers, and for the removal of every sort of offal.
For cleansing grounds, buildings, and vessels.
For regulating the location of chemical works, slaughter-houses, and every kind of building or process that may be offensive or injurious.
For regulating the sanitary condition of houses and shops that may be crowded, and the heat and ventilation of school houses, and other public buildings.
For regulating the sale of unwholesome food and drink, intoxicating liquors, adulterated medicines, &c.
For the superintending of burial-grounds and interments.
For the registration of births, marriages, and deaths;
And for executing all other sanitary orders of the General Board of Health.

Sec. 17.—Authorizes the local Board in any sea port to establish quarantine.

Sec. 18.—Requires that the head of any family in which a case of small-pox exists to give notice of it to the Board of Health.

Sec. 21.—Requires sheriffs, marshals, and constables to execute the orders of the Boards of Health in removing nuisances and persons affected with contagious diseases, breaking open houses or other places where these may be, and impressing, for the use of the sick, houses, nurses, attendants, and other things needful for this purpose.

Secs. 22, 23, 24.—Provide for the payment of all these operations, and all expenses of the Board of Health by the town or city.

Sec. 25.—Requires the general Board to take measures to prevent the spread of contagion.

Sec. 26.—Imposes penalties on the resistance to, or infraction of, the rules and orders of the Board of Health.

Sec. 27.—Requires the local Boards to report annually to the general Board the sanitary history and condition of their towns and cities, and to recommend such measures as seem to them improvements.

Sec. 28.—Imposes a penalty on any town which shall neglect to appoint a Board of Health, and upon the Board if they neglect to report to the general Board.

Secs. 30, 31, 32.—Require the owner of any property to remove any nuisance or filth from it, at his own expense, on notification for this purpose from the Board of Health, and if he neglect to do so, he shall be fined for each day's negligence, and the Board shall remove it at his cost.

Sec. 35.—"Any person injured, either in his comfort, or in the enjoyment of his estate, by any nuisance, may have an action on the case," and recover damages of the person by whose action or negligence the nuisance is produced or continued.

This is the substance of the law proposed by the sanitary commission.—There are many details and incidental and collateral minutiæ and explana-

tory matters, necessarily omitted here, which give the system a completeness in its plan and effectiveness in its operation.

This law is now proposed to the government of Massachusetts for their adoption. After the attention and encouragement of three successive legislatures; after the careful consideration of two committees, and one commission appointed expressly for this purpose; after the active urgency of the friends of this measure, who, as naturalists, as philanthropists, and as political economists, have pressed it upon the people and the law-givers through several years; after all this interest and labour in the production of the plan, it is confidently hoped that this, the fourth legislature that has had the matter under consideration, will adopt the propositions of the commission, and provide by public law for the security of human life and health, as effectively as they do for the security of property.

The commission recommend a series of fifty measures, which constitute their plan of sanitary reform. These fifty recommendations are stated in the form of specific propositions, and are supported by many facts and arguments, which run through one hundred and thirty-two pages of the report.* Many of these measures are already indicated in the law which we have already analyzed. Others are subsidiary, and need further explanation.

In the construction of the general Board of Health, the commission recommend† that it should contain:—

1. "Two physicians, at least, of scientific attainments, and of extensive practical experience in their profession, thoroughly understanding sanitary science, and deeply feeling the importance of wise sanitary measures."
2. "One counsellor at law, who, besides the general knowledge of law and medical jurisprudence, might especially be able to investigate any legal question that might arise."
3. "One chemist or natural philosopher. Many questions relating to the influence of the elements on the production or prevention of disease may require the special investigation of an experienced chemical philosopher."
4. "One civil engineer, possessing competent knowledge to determine the best methods of planning and constructing public works, and the best architectural sanitary arrangements of public buildings, workshops, and private dwellings."
5. "Two other persons of acknowledged intelligence, good judgment, and practical experience in the common affairs of life."
6. "All should make themselves thorough masters of the objects of their appointment, should have sagacity and foresight to perceive the bearing and effect of every measure proposed, be eminently practical men, wise in deliberation, andjudicious in decision."

The Secretary is to be the active and efficient officer of the Board. "He should be thoroughly educated in the science of public health, and the causes and prevention of disease; and be capable of arranging, analyzing, and combining the facts that may be collected, and of making such deductions from them as will be most useful to science." For this purpose, he must be a man of high order of intellect and education. He must devote his whole time to the work; and for this he should receive a competent reward.

The local Boards, like the general Board of Health, are to be somewhat permanent. They are to consist of three, five, or seven persons, each of whom is to hold his office as many years as there are members, one being appointed in each year. Besides these, the principal officer and the clerk or registrar of the town or city are to be *ex officio* members of the Board.

These local Boards are to make a report annually to the town of the sani-

* Pages 109 to 241. † Report, page 113.

tary condition of the town or city during the preceding year, and to send a copy of their report to the Secretary of the general Board.

The fifteenth recommendation proposes "that provision be made for obtaining observations of the atmospheric phenomena, on a systematic and uniform plan, at different stations" in various parts of the State.

The precise influence of the atmosphere in its various conditions upon health and disease is not yet determined. That this influence is very great in the production of colds, influenza, and other epidemic and sporadic diseases, is hardly doubted by any: but how far this extends is yet to be ascertained by many and varied observations of the atmospheric phenomena, and of co-existing disease; both of which must be systematized and compared, in order that valuable deductions may be drawn from them, and the true connection between these classes of facts determined.

The reports of the Registrar General of England for several years contained the meteorological observations which were made at the Royal Observatory at Greenwich, in connection with the returns of deaths and diseases. Similar combinations of meteorology with mortality have been published by M. Quêtelet, at Brussels, in Belgium. The legislature of Massachusetts has already ordained the establishment of several stations in various parts of the State, not exceeding twelve in number, "where shall be deposited the instruments necessary for making systematic observations in meteorology, according to the plan recommended by the Smithsonian Institute, at an expense not exceeding one hundred dollars for each."* The results of these observations, when compared with the sanitary reports, and the bills of mortality, will throw much light on the connection of the atmospheric condition and influence with health and disease.

We would call public attention especially to the sixteenth recommendation in this report: "That, as far as practicable there be used, in all sanitary investigations and regulations, a uniform nomenclature for the causes of death and for the causes of disease."

A uniform nomenclature of diseases and their causes is as important in all descriptions and reports respecting sickness and mortality as a uniform grade of instruments is in meteorological reports, or as a uniform standard of weights and measures is in all commercial regulations.

It is difficult to conceive of so great uncertainty, variety, and inaccuracy in the application of terms in any other science as in the reports of mortality and its causes, and in the popular notions and conversation upon these subjects. Various names are used to designate the same facts and conditions, and the same term is applied at different times and in different places to describe different diseases. There is, among physicians, some inaccuracy of diagnosis and more inaccuracy of language, and among the people both of these prevail to a great extent.

The Registrar-General of England, in his seventh Report,† publishes a list of all the various names and terms, intended to describe diseases and the causes of death, that came to his office in the reports of the local registrars throughout the kingdom. They amount to 1177. These, however, are reduced to 95 in the nosological arrangements of these reports.

Perhaps, if we could collect the terms which are used in conversation, or in writing, by the friends of the deceased, or by the physicians, or by others who should report, to designate the causes of death throughout the United States, we should find as great a variety of terms as is found in England.

* Acts and Resolves of March, 1850, chapter l. p. 104.

† Pages 293 to 314.

We have now before us the registration reports and bills of mortality of two States and of several cities. The following are the numbers of terms used in these to designate the causes of death:—

	Year.	Number of causes of death.		Year.	Number of causes of death.
Massachusetts	1843	106	New York City	1844	96
"	1847	97	"	1849	118
New York State	1847	153	Boston	1837	97
"	1848	175	"	1849	89
Charleston, S. C.	1828 to 1845	236	Baltimore	1845	85
Philadelphia	1840	208	"	1849	95
"	1846	222	Providence	1849	74
New Orleans	1849	197	Lowell	1849	59
Washington	1849	148			

It is not necessary here to show the precise difference between the nosological nomenclatures of these different States and cities. These facts are sufficient to show that they are very unlike. It is not to be supposed that the distinct diseases or causes of death in Charleston, S. C., are to those of Lowell, Mass., as 236 is to 59, or that those of Philadelphia are to those of Boston in the ratio of 222 to 97, as is apparent from the bills of mortality of these cities. But, making all due allowance for the difference of climate and endemic influence, and for some rare diseases which may occur in some places, and in some years and not in others, and also for variety of accidents which are reported as distinct causes, the difference in these numbers is probably to be charged mainly to the difference of minute diagnosis of disease, or to difference of language in those who make the reports of deaths, or in those who make and publish the record. Some reporters, being unacquainted with scientific nosology, give popular names of the diseases or causes of death, which may be many and various as applied to the same disorder or lesion; or different reporters may give the same name to various diseases. Some registrars record these as they are reported—others condense them, and, instead of the varying popular names, give the single scientific synonyme.

But, whatever may be the cause of these differences of nomenclature in the bills of mortality, it is manifest that the language used in Charleston and Philadelphia to designate diseases or causes of death is not like that used in Boston, Lowell, and Providence, to describe similar facts. It is, therefore, very difficult, if not impossible, to combine the reports of deaths and their causes in these various places, and arrange their facts in one system, in order to afford the broadest ground of reasoning and inference, in respect to life and mortality.

The sanitary commission had this difficulty in view, and in order to meet it, they proposed the adoption of one uniform nomenclature or system of naming diseases, by all the reporters and registrars in this State. The commission spoke for Massachusetts alone; but it is to be hoped that their suggestion will go farther, and that their nomenclature will be adopted by all the medical writers and registrars in all other States of the Union.

The Massachusetts Medical Society, at the request of the commissioners, directed their committee to prepare a nosological system, to be used by the registrars of the State. The system which they prepared, and which is adopted by the commission, and published and recommended in their report, is mainly that which was prepared by Mr. William Farr, of London, for the Registrar-General of England, and is used in all the English Registration

Reports. There are some few alterations, to suit the difference of diseases in England and America. It is similar to the nomenclature of diseases prepared by a committee of the American Medical Association, and printed in their Transactions for 1847.

This arrangement divides the diseases into twelve classes:—

I. Zymotic, or endemic, epidemic and contagious diseases.
II. Diseases of uncertain or variable seat.
III. " Brain and nervous system.
IV. " Organs of circulation.
V. " Respiratory organs.
VI. " Digestive organs.
VII. " Urinary organs.
VIII. " Generative organs.
IX. " Locomotive organs.
X. " Skin.
XI. Old age.
XII. External causes.

These classes are subdivided into one hundred and eight diseases, which we here quote entire from the report* of the commission.

I. *Zymotic diseases.*

1 Cholera,
2 Cholera Infantum,
3 Croup,
4 Diarrhœa,
5 Dysentery,
6 Erysipelas,
7 Fever, Intermittent
8 Fever, Remittent
9 Fever, Typhus
10 Hooping Cough,
11 Influenza,
12 Measles,
13 Scarlatina,
14 Small-pox,
15 Syphilis,
16 Thrush.

II. *Diseases of uncertain or variable seat.*

17 Abscess,
18 Atrophy,
19 Cancer,
20 Debility,
21 Dropsy,
22 Gout,
23 Hemorrhage,
24 Infantile disease,
25 Inflammation,
26 Malformation,
27 Mortification,
28 Scrofula,
29 Sudden,
30 Tumour.

III. *Brain and nervous system.*

31 Apoplexy,
32 Cephalitis,
33 Chorea,
34 Convulsions,
35 Delirium tremens,
36 Epilepsy,
37 Hydrocephalus,
38 Insanity,
39 Paralysis,
40 Tetanus,
41 Organs, disease of

IV. *Organs of circulation.*

42 Aneurism,
43 Pericarditis,
44 Organs, disease of

V. *Respiratory organs.*

45 Asthma,
46 Bronchitis,
47 Consumption,
48 Hydrothorax,
49 Laryngitis,
50 Pleurisy,
51 Pneumonia,
52 Organs, disease of

VI. *Digestive organs.*

53 Ascites,
54 Bowels, disease of
55 Colic,
56 Dyspepsia,
57 Enteritis,
58 Gastritis,
59 Hernia,
60 Intussusception,
61 Peritonitis,
62 Quinsy,
63 Stomach, disease of

* Page 393.

64 Teething,
65 Ulceration,
66 Worms,
67 Hepatitis,
68 Jaundice,
69 Liver, disease of
70 Pancreas, disease of
71 Spleen, disease of

VII. *Urinary organs.*

72 Cystitis,
73 Diabetes,
74 Gravel,
75 Kidney, disease of
76 Nephritis,
77 Organs, disease of

VIII. *Generative organs.*

78 Childbirth,
79 Paramenia,
80 Puerperal fever,
81 Organs, disease of

IX. *Locomotive organs.*

82 Rheumatism,
83 Joints, &c., disease of
84 Hip, disease of
85 Spine, disease of

X. *Skin.*

86 Fistula,
87 Purpura,
88 Ulcer,
89 Skin, disease of

XI. *Old age.*

90 Old age.

XII. *External causes.*

91 Accident,
92 Burns and scalds,
93 Drowning,
94 Execution,
95 Freezing,
96 Glanders,
97 Heat,
98 Hydrophobia,
99 Intemperance,
100 Lightning,
101 Malpractice,
102 Murder,
103 Necusia,
104 Poison,
105 Starvation,
106 Suffocation,
107 Suicide,
108 Wounds,
109 *Unknown*,
110 *Still-born*.

Mr. Farr's system, used in the English Reports, includes *hydrophobia* in the first instead of the twelfth class, and omits *remittent fever*. It puts *quinsy* among the diseases of the respiratory instead of the digestive organs. It includes *ischuria* and *stricture* among the diseases of the urinary organs, *ovarian dropsy* among the diseases of the generative organs, *carbuncle* and *phlegmon* among the diseases of the skin, and *cold* and *privation* and *violent deaths* among the external causes, which are omitted in this system of the sanitary commission. It omits also *puerperal fever* among the diseases of the generative organs, *fistula* and *purpura* among diseases of the skin, and the whole of the class of external causes excepting *intemperance*, which are included in the American system.

The seventeenth recommendation advises that,

"In laying out new towns and villages, and in extending those already laid out, ample provisions be made for a supply in purity and abundance of light, air, and water; for drainage and sewerage, for paving and cleanliness."

We have already called the attention of the readers of this Journal* to the importance of this matter. And we cannot omit this opportunity to urge it again upon the people of this country. Our population is fast gathering into dense masses; new villages are created, villages are growing into towns, and towns into cities, and old cities are expanding their borders and condensing their interior districts. The ratio of increase of population within the last thirty years has been greater, and in some places very much greater, in the cities and dense towns than in the country parts of the States to which they belong.

* Vol. xv., p. 419, April, 1848.

In this development of new towns and cities, and in this extension of the old cities over their rural neighbourhoods, the manner of the growth and change is mostly left to private interest and to chance. The general plans, if they exist at all, are arranged and the streets are laid out as the present temporary convenience may suggest, or as the interests of the land proprietors may require. The questions of the facility of present travel or of conducting business, the cost to the public of building the road and the sale of the lots, are first considered in preparing or extending the sites of towns. Very few of them, in their incipient and amorphous stages, have their destinies shaped by that far-reaching economy that looks upon vacant lands as the seat of a future city, and arranges the plans, lays out the streets, and determines their direction, width, and grades, in reference to the sanitary wants of a dense population that shall ultimately cover them.

When the streets are first run through the open fields, a passage way for travel only seems to be needed; and even when the houses are first built, they are not high, and the land being comparatively cheap, the buildings are set back with yards between them and the highway. Thus far the public wants are satisfied, for they need and demand no more space for their use. But when the pressure of population and business, and the increased value of land, line these highways with high and continuous houses and shops close by their borders, then the streets are found to be narrow and dark, and the want of more room for light and ventilation is felt.

As population becomes more dense and land more valuable, the owners of vacant lots and gardens find it for their interest to run courts into them, and line these with houses. These courts are closed at one end, and sometimes at both, except by an arched passage leading under the buildings at one end into the open street. Sometimes one court leads from another. These places are generally very narrow, and the houses that border upon them are often high. Thus the ventilation in great measure is excluded, or reduced down to the lowest point that art and cupidity can bring it. And light is provided in the same sparing way. Consequently, two of the great essentials of life and enjoyment, light and air, which are offered by a beneficent Providence with unlimited bounty, are supplied to the dwellers of these narrow and almost closed courts with the most grudging parsimony.

The lands into which an old city expands, or over which a new city is created, are usually in the hands of many proprietors, who have no other interest than to convert their lots into money. All that is not thus converted is lost to them. No one of them feels it to be his duty, or is induced by his views of his own interest, to provide for the wants of future generations of dense population, by leaving unoccupied any open fields for common and public use. Consequently, our American cities are growing up and expanding, without commons and public grounds, places of promenade for men and women, and play for children and youth, apart from the common thoroughfares; or, if they are provided, it is with few exceptions done so meagrely as to fall very far short of the wants of the inhabitants of a compact city.

If this recommendation of the commission should be universally adopted, and the projectors of new cities, or those who expand any old city or town, were required to lay their plans, arrange their streets as to direction, width, and grade, and to leave open grounds for public use, solely in reference to the life and energies of the dense population of the future city, health, comfort, and productive power would be increased, the earnings would be augmented, the expenses of sickness and the cost of conducting business would be diminished, and wealth multiplied through coming generations beyond the present calculations of the projectors.

The commission recommend that all public buildings, churches, school-houses, court-houses, theatres, and halls for public assemblies of whatever nature, be planned and built with express reference to the health of the occupants, and this be considered especially in regard to the situation, warming, and ventilation.

They advise that all persons, whenever they erect any building, whether for dwelling or for the purposes of business, give notice to the local Board of Health of the sanitary arrangements. They advise that this local board very carefully notice the sanitary condition and circumstances of people dwelling or working in the vicinity of ponds, and especially of such as are alternately flowed and drawn off for mills.

The thirty-third recommendation advises "that the general management of cemeteries, and other places of burial and of the interment of the dead, be regulated by the local boards of health."

We have already spoken of this subject at considerable length,* and we are now glad to see the opinions which we then gave, sustained by public authority, and urged upon the government for their adoption, and upon the people for their action.

Proper respect for the dead, and the tenderest regard for the agonized sensibilities of their relatives, are perfectly consistent with a due regard to the health of the living. On the contrary, the manner of burial which is common in many cities and towns is disrespectful to the deceased, revolting to the feelings of mourning friends, and injurious to public health.

All our notions of comfort in sickness, all our satisfactory associations with death, are connected with retirement and peace. The true respect for the dead, and regard for the feelings of surviving friends, require that the resting-places of the deceased should be in the fields of quiet and seclusion, apart from the scenes of labour and business, the haunts of indifference and revelry, and the tumult of business. They should rest where none come but to contemplate, where the mourner can retire to commune with the departed, undisturbed by the noise of busy life.

The old cemeteries are in the midst of dense streets and the crowded population of many cities and towns. The graves, which are sometimes pits, are dug as near to each other as possible, and the corpses are piled one upon another, from the depth of many feet in some places to within a few inches of the surface. Thus, these burial-grounds are filled and filling to their utmost capacity with the bodies of the dead, which form almost one mass of decomposing and corrupting flesh. During this process of decay, they send forth their gases and fluids to affect the neighbouring springs and waters that percolate through the earth, and to rise above the ground and vitiate the atmosphere.

The health of the living must necessarily suffer, to a greater or less extent, from drinking the waters which are thus affected, by breathing the air which is thus tainted, or by the absorption through the cutaneous surface of any of the exhalations from the decomposing bodies of the dead.

The establishment of rural cemeteries in the vicinity of cities and out of the villages meets and obviates these objections. The effluvia which they send forth cannot reach the dwellings to corrupt the air, nor the gases reach the springs to vitiate the drink of the living and to impair their health. They leave the dead in their long homes in quiet and peace, undisturbed by the cupidity that removes them in order to sell or let their graves to new

* Journal, No. 17, p. 131, Jan. 1845.

occupants, and there the mourners can retire and be alone with the departed friends.

The twenty-sixth recommendation advises "that measures be taken for preventing or mitigating the sanitary evils arising from foreign immigration."

The commission, after informing us of the number of immigrants that arrived in Boston, "125,000 within the last four years," shows that many of these foreigners bring their poverty and their low health from their native lands. In 1834, the poor law commissioners of England recommended that the parish officers be authorized to pay the cost of the transportation of any of their paupers to a foreign country.

"Some poorhouses have been emptied, and their inmates transported to America. The stream of emigration has increased, and seems to gain a new accession of strength in every passing year. Massachusetts seems to have resolved itself into a vast public charitable institution. Into her institutions are admitted the emigrant pregnant woman at her lying-in, the child to be nursed, the pauper to be supported, the criminal to be punished and reformed, the insane to be restrained and cared for, the sick to be nursed and cured, the dead to be buried, the widow to be comforted, the orphan to be provided with a substitute for parental care; and here ten thousand offices of social and personal kindness and charity, not recognized by the laws of the State, costing thousands upon thousands of dollars, are bestowed."*

"Our own native inhabitants, who mingle with these recipients of their bounty, often become themselves contaminated with diseases, and sicken and die; and the physical and moral power of the living is depreciated, and the healthy, social, and moral character we once enjoyed is liable to be forever lost. Pauperism, crime, disease, and death stare us in the face."†

There is much reason for supposing that foreigners, and especially the natives of Ireland and their children, in this State, have a lower degree of health than the natives of this country of Anglo-Saxon origin. They furnish much more than their due proportion of the inmates of our hospitals, poorhouses, and prisons.

From all the facts that can now be obtained relative to the health and longevity of our foreign population, it is very probable that their vital force is lower than that of the natives. They, especially the Irish immigrants, seem to have less physical, intellectual, and moral power, and hence they are more frequently sick, they die at earlier periods, a larger proportion of their children die, they are less capable of supporting themselves, they are more frequently led to violate the laws; whether this is owing to native and inherent weakness, or to the influences of this climate, or the circumstances and conditions of a strange land and a strange society, is yet to be revealed.

The thirty-seventh recommendation of the commission is worthy of very careful consideration, and we commend it to the people in all parts of the country. They advise "that a sanitary association be formed in every town and city in the State, for the purpose of collecting and diffusing information relating to public and personal health."

Most of the sciences and arts, and the important interests of the people, have their associations to encourage and establish them. The friends of these find great advantage from these combinations to gather and diffuse knowledge. Agricultural societies have done much to elevate and advance that profession. By their mutual consultations, by their exhibitions, by their reports and their journals, they have brought to one focus the wisdom and the experience of every part, and again they have spread these before the whole. Thus, all the people have been induced to look to the higher, and many to the highest

* Report, page 205. † Ibid.

standard, and have endeavoured to improve their own works thereby, and all have consequently made great advancement. Societies are everywhere formed to create an interest in and for the diffusion of the principles of other arts and the strengthening of other interests. By meetings and discussions, by publications and by example, they excite a love for, and gather and extend the knowledge of, the principles which they desire to cherish.

By the same means, an interest may be created in the laws of health; a knowledge of the elementary principles of life may be obtained and diffused, and the people led to understand what these are and how to apply them in their self-government, in all the chances, labours, and affairs of common life. They may be induced to inquire, whether human life cannot be improved as well as the life of the lower animals; whether the deficiencies of health and strength, the discomforts, pains, sickness, and early mortality may not be owing to causes which can be removed; and whether all the means and opportunities that are offered to man for the development and maintenance of his powers are used to their best advantage.

These sanitary associations are now common in England: and there they are doing great good in ferreting out sanitary evils and the causes of low health and sickness, and thus creating a public desire and will to remove or ameliorate them. Their addresses and their journals are full of interest upon these topics, and teach us, as well as themselves, valuable lessons in regard to the practical advantages of obeying the law of life.

The London Statistical Society has been very active in this matter, and has caused some important investigations as to the condition and health of the people and especially of the poorer classes. Their reports are printed in their journal, and are worthy the careful study of the people of America as well as of England.

We earnestly hope that, according to the suggestions of the commission, similar societies will be formed in this country. There should be, in every town and city, associations of men in pursuit of the best means of developing strength and maintaining health, jealously watchful of every nuisance and every injurious habit and custom, looking carefully after every defect and circumstance that may, in the least degree, interfere with public or private health, with the fullness of human power on earth.

The thirty-eighth, thirty-ninth, fortieth, and forty-first recommendations of the commission advise,

"That tenements for the better accommodation of the poor be erected in cities and villages."

"That public bathing-houses and wash-houses be established in all cities and villages."

"That whenever practicable the refuse and sewerage of cities and towns be collected and applied to the purposes of agriculture."

"That measures be taken to prevent, as far as practicable, the smoke nuisance."

These are worthy of commendation; we have already spoken of them;* and now we pass to the forty-fourth recommendation, which advises "that institutions be formed to educate and qualify females to be nurses of the sick."

Here comes a tender point; we want a corps of well-educated nurses, and yet we hesitate: thinking "a little learning is a dangerous thing" in medicine, we fear that females trained to the professional care of the sick may wish also to prescribe and thereby interfere with our plans, or assume responsibilities which should rest only on those who are completely educated in the

* Vol. xv. page 419, April 1848.

principles of the healing art. Yet, if they are properly educated, there is no ground for this fear; certainly, if our nurses were systematically trained to their employment, we should rest with more confidence that our prescriptions would be faithfully administered. Few physicians have been long in practice without having occasion to feel how much they and their patients are in the hands of the attendants, who are often ignorant and sometimes officious and meddlesome, and how often their carefully studied plans of treatment are rendered feeble and ineffective for want of discreet and faithful co-operation in those who stood and watched permanently by the bedside.

For other employments, men and women serve an apprenticeship: they devote some months or more to learn the art of dress-making, spinning, straw-braiding, &c.; but ordinarily, no such preparation is required for the care of the sick. Any one whose heart is warm with benevolence, or who has no other occupation, or even who has failed in other pursuits, may set up for a nurse and obtain employment.

If our hospitals would admit women to learn the art of nursing the sick, and, after a proper apprenticeship, send them forth, with certificates of proper qualification, to be employed in the sick chambers of private life, they would do a great good, and aid to supply a want that is now very generally felt, and in some cases very severely.

The forty-fifth recommendation advises "that persons be specially educated in sanitary science, to be preventive as well as curative advisers."

This strikes at the root of the whole matter, and, if adopted and carried out, will have an important influence on the sanitary condition of the people, on the studies of our profession, and on their relation to those who employ them. "They that are whole need not a physician, but they that are sick." This doctrine has been believed by the world, and made the law of all time, from the beginning. The world does not believe it wants, and no class of men prepare themselves to give, preventive advice. There is no demand, and consequently no supply. The sole vocation of the physician is looked upon as curative, as remedial of an evil when it has come, but not as defensive against it. Men are generally willing to seek and to pay for the skill that redeems them from disease and pain, but they have no idea of looking for, or paying a man of science for warning them of, and defending them against, this evil. A prudent man consults his lawyer as to the proper course to be pursued in order to avoid the entanglements of the law, and the risk or loss of property, and pays him liberally for this cautionary advice. But, in regard to sanitary measures, the location of a house, the ventilation of a dwelling, the selection of occupation, diet, habits, or any other thing that may immediately or remotely affect the health or strength of himself, his family, or his neighbourhood, if he consults his physician at all, which, however, is not frequently done, he expects his adviser to give his opinion on the friendly or neighbourly account, and not as a matter of commercial value. And even then this advice is not held in the same estimation, nor considered as worthy of confidence and obedience, as the opinions of the same adviser when consulted in regard to any disease.

As the world is glad to obtain and pay for the wisdom that can remove a fever, but is unwilling to pay for that which keeps the fever away, the natural consequence is, that men, when they prepare themselves to be physicians, seek for that knowledge which will be demanded and bought by those who will employ them. Allowing to the medical profession all due credit for philanthropy, which we claim for them in no small measure, yet a great object of the physician, like that of other men, is to obtain his support by his

calling. He, therefore, instructs himself with that kind of knowledge which the people will purchase. Looking at the market, he gathers for other men's use that commodity which they are willing to seek and pay for, and which is thus convertible into bread for himself and his family. He therefore becomes a curative and not a preventive physician. And until mankind looks differently upon health and disease, and considers that the former is very much in their own hands, and that the latter may be prevented, in a great measure, by proper self-management, and will set a just value on the skill that shall guide them safely from the attacks of disease, it is altogether vain to expect that ours or any other profession will devote the time and labour necessary to be accomplished and successful preventive advisers in sanitary matters.

The forty-sixth recommendation advises "that physicians keep records of cases professionally attended."

We yet need more tangible and definite grounds to determine the events of disease. We have general and conjectural opinions on this point, but we have no accurate data for comparing the mortality of different diseases, or of the same disease in different seasons, or periods, or in different places or classes of society. Some of the British vital statisticians have endeavoured to ascertain, from a few records, the proportion of deaths to the amount of sickness or to the number of attacks of all kinds of disease. But their inferences have no regard to special diseases, and throw no light upon their comparative curability or fatality.

The Massachusetts Medical Society took this matter into consideration in 1843. It was referred to a committee, who made their report the next year. They advised that a universal system of registration of disease be adopted by the members of the Society; that the records of all these physicians be annually gathered; and that the committee of the Society digest all these returns into one system, and print the results in a tabular form, with such suggestions or annotations as may be supplied to them, and distribute the volume, when printed, to the Fellows of the Society. The Society accepted and printed the report, and distributed it to all its members; but no further action was taken upon it; and this plan thus slept the sleep of death. Again it is proposed by this commission, and, we trust, with better results.

We have thus given, at considerable length, the substance of this able and valuable report. After all that has been done by the people and the governments of some countries of Europe, and after all that has been done by individuals and societies in America, this report is the first approach to legislation from any government in this country.

This plan of Mr. Shattuck is an extensive one. It comprehends more than the friends of the measure originally proposed for immediate adoption, and more, we fear, than any of our legislative bodies will see their way clear to adopt at once. The original friends of this measure only asked for a sanitary survey; but they had no doubt that, when this should be undertaken and accomplished, the people would see the advantage of further action, and call upon their legislators to provide successively for all the sanitary measures which are proposed in this report.

As it is, we commend this report, with all its plans and details, its facts and arguments, to the careful consideration of physicians and philanthropists, of political economists and legislators, with the confident belief that the condition of man will be improved, and the interests of humanity advanced, as well as public and private wealth increased, by its adoption.

E. J.

Art. XIV.—*Musée d'Anatomie de la Faculté de Médecine de Strasbourg — Histoire des Polypes du Larynx.* Par C. H. Ehrmann, Professeur à la Faculté de Médecine de Strasbourg, &c. &c. &c. Fol., avec six planches lithographiées: pp. 58. Strasbourg, 1850.

Anatomical Museum of the Faculty of Medicine of Strasbury—History of Polypus of the Larynx. By C. H. Ehrmann, Professor to the Faculty of Medicine of Strasburg, &c. &c. &c. Fol., with six lithographic plates: pp. 58. Strasburg, 1850.

The author of the book whose title we have copied above was induced to present to the profession this result of his studies in the matter of polypus of the larynx, partly because of the importance of the subject, and partly because his own experience in the treatment of the affection enables him to place it before his brethren in a more favourable light than they have before seen it. In the year 1844, he was called to attend upon a case of polypus of the larynx, in which death was imminent; he opened the trachea and larynx, removed the offending growth, and saved the patient's life. This case was reported to the Academy of Sciences, of Paris, and was pronounced by that learned body to be the first instance in which this operation had been successfully performed in this disease; and Stromeyer, President of the Scientific Congress which assembled at Aix la Chapelle, in 1847, declared that it was one of the most brilliant conquests of modern surgery.

In this essay, M. Ehrmann has collected the reports of all the well-authenticated cases of this affection which he has found recorded, and lays them before the reader, accompanied by drawings illustrative of many of them.

No tabular statement of the phenomena attending the disease in these cases is presented; indeed, the character of the reports hardly admits of a satisfactory exposition of this kind. We will endeavour, however, to analyze the details as well as we may, inasmuch as we think that any reliable information concerning this interesting and obscure affection must be worthy of attention.

The number of cases which M. Ehrmann reports amounts in all to thirty-six. These are collected from various sources: two are from Lieutaud; three from Desault; one from Pelletan; two from Schultze; one from Otto; two from Andral; one from Senn; one from Urner; one from Dupuytren; one from Brauers; one from Rayer; one from Dawosky; one from Trousseau and Belloc; one from Gérardin; one from Mayo; one from Ryland; one from Rendtorff; three from Gluge; one from Nasse; one from Stallard; one from Bertherand; one from Rue; and two which he observed himself: the remaining five occurred in animals, two of them in horses, and three in cows. These cases are reported briefly, but satisfactorily as regards the main points, in most of them.

The prominent symptoms in these instances were, sense of the presence of a foreign body in the larynx, producing cough, alteration in the voice, dyspnœa in paroxysms, and finally complete prevention of the entrance of air, and death. But these symptoms varied considerably in intensity and in their progress.

The mode of invasion differed. In one case (obs. 19) the first symptom was sudden and inexplicable loss of voice, to which was added, at the end of eighteen months, cough, with dyspnœa; death at the expiration of two years. In others, and most commonly, the affection manifested its existence by the occurrence of slight dyspnœa, or trifling change in the sound of the voice, at a period remote from the termination, in one individual two years before death (obs. 31), in another six years (obs. 29). On the other hand, the progress of the affection may be more rapid, as in the instance described in obs. 7; a

boy, six years old, presented symptoms of croup, in the latter part of February; the attack did not pursue its usually rapid course, but became gradually chronic, the child having more or less fever all the time, and his voice being always muffled; towards the beginning of May, he recovered in a measure his strength and flesh, but on the 12th July, about twenty weeks after the first seizure, he was suddenly attacked with suffocative dyspnœa, and died in the paroxysm. At the *autopsy*, a polypus was found seated near the base of the epiglottis cartilage, and closing the chink of the glottis. And in obs. 17 is recorded the history of another boy, ten years old, in whom the cause of formation of the polypus which destroyed his life is ascribed to the prior occurrence of repeated attacks of croup, under which the child suffered from trifling exciting causes. In such instances as these, in which the disease is of an *acute* character, the symptoms may abate from time to time, or they may continually increase in intensity, consisting of a croupy cough, constant or interrupted dyspnœa, with occasional or frequent paroxysms of suffocative orthopnœa, in one of which the sufferer usually dies; or death may be produced by a more gradually induced suffocation. In the more *chronic* cases, the symptoms may be thus enumerated: *feebleness, hoarseness, or other alteration in the tone and character of the voice,* gradually increasing, and amounting at last to aphonia, either persistent or interrupted; *dyspnœa*, varying in degree, but generally steadily augmenting, and in almost every case attended with paroxysmal aggravations, which may be so protracted in their duration as to simulate death (obs. 13), or, as in most of the observations, as actually to prevent restoration; sometimes this dyspnœa is produced during the act of *expiration*, and apparently by it, and is relieved by the *inspiratory* effort (obs. 3, 4, 5 and 8), but the reverse may be the case, or the difficulty of breathing may be equally great in both (obs. 13 and 18); *cough* is always present, but its characters are not particularly significant, being croupy, or simply hoarse, continuous, or in paroxysms, dry or attended with expectoration, appearing at the commencement of the difficulty, or at a later period; *the expectoration* is generally not characteristic of this affection, being usually formed of simple mucus, more rarely of mucus streaked with blood (obs. 8 and 9); the *respiratory sounds* were such as to indicate, generally, the existence of an impediment of some sort to the free passage of the air to and from the lungs; but they were not always the same in different cases; sometimes they resembled the noise of snoring, but more frequently they were merely harsh or stridulous; these sounds may be rendered more audible by the aid of the stethoscope. In several of the observations, there was experienced a *sensation of a foreign body in the larynx*, or of some stiffness and uneasiness in the acts of breathing and swallowing (obs. 8, 9, 12, &c.), but in other cases no such sensation was complained of by the patient, or it was omitted in the reports; rarely was there any tenderness or pain in the larynx.

We have said that, in the cases recorded by M. Ehrmann, the expectoration was not, in general, significative of polypus of the larynx; but in two of them it was so. The eighth observation illustrates this point in a very interesting manner; it is as follows: "A man of sixty-five years of age, but otherwise hearty, had been for several years past troubled with *hoarseness of voice*, which he attributed to a cold, and which gradually rendered him almost aphonic. He coughed but seldom, had no pain in the larynx, but experienced a disagreeable sensation, as of a substance which closed the larynx whenever he swallowed solid food, and when he expectorated mucus. Fearful of being affected with *phthisis laryngea*, he at length consulted a physician. The latter having exhibited to him the most appropriate remedies, both internal and external, the patient expectorated, a few days afterwards, in a paroxysm of

coughing, *a small globular, fleshy, red and solid mass*, of the size of a currant, and two days later *a similar body*, about as large as a small cherry: immediately afterwards, his voice and the facility of breathing were restored. At the expiration of some weeks, the patient expectorated, for the third time, *a fleshy mass* as large as a pea, and furnished with a very *delicate pedicle*. But the roughness of the voice and the dyspnœa soon returned: the latter symptom became so much aggravated that the abdominal muscles grew very painful, in consequence of their powerful contractions in respiration. Sometimes a slight cough occasioned the expulsion of a very viscid matter, tenacious, and at times mixed with blood. The patient's powers gradually sank, and he died of slow suffocation.

Autopsy.—The larynx was almost completely ossified, and the epiglottis cartilage was loaded with an abundance of fat. A *fleshy and nodulated tumour* of large size was found, as it might be, suspended in the glottis, springing by quite slender pedicles, surrounded by fibrous appendages, from the inferior vocal ligament on each side: it was consequently movable, and was formed by the union of three excrescences, each of which was as large as a hazelnut: they were roundish, rough, very firm, elastic, and of a pale red colour. One of them, situated above the glottis, was prevented by its volume from engaging itself in the chink; but the other two, placed below this opening, closed it so completely during the expiratory act, that suffocation must inevitably have followed. Apart from this, the vocal ligaments themselves, the ventricles of Morgagni, and the entire mucous membrane of the larynx were not at all abnormal in their appearance, excepting that here and there were a few red spots, and vessels of small calibre going to the polypi through the pedicles." There is a very good drawing of this larynx among the plates.

The twenty-ninth observation records a similar expulsion, at different times, during violent paroxysms of coughing, of small fragments of tissue similar to that of the tumour which was subsequently removed by the operation practiced upon the patient by M. Ehrmann, and which we shall have occasion to mention again directly. And even if the polypus, or portions of it, should not be actually expectorated, it is still interesting, though not available in a diagnostic point of view, to know that it may, by the violence of the cough, become detached from its connection with the mucous membrane and produce suffocation, as was the case in the twenty-eighth observation: "A woman, aged forty years, entered the hospital in a state of extreme exhaustion: she presented the symptoms of bronchitis, with severe cough and dyspnœa. During three or four days, she seemed to be getting better; but a *paroxysm of coughing* came on suddenly, and she died before any assistance could be offered to her. *Autopsy.*—The lungs were very emphysematous. The ramifications of the bronchial tubes were healthy, but the large trunks were very much congested. In the *trachea* was found *a polypous mass detached;* it was as large as an almond, and had a pedicle nearly three-fourths of an inch long. It was supposed at first that this body came from some point of the *larynx, a part in which this kind of growth most frequently originates;* but, on examining *the trachea*, we discovered upon its anterior wall, at the distance of half an inch below the cricoid cartilage, a reddened and thickened wound, below which the mucous membrane immediately regained its healthy appearance."

The expectoration of such matter as that which was thrown from the larynx in the cases mentioned above, viewed in connection with the alteration in the voice and in the character of the respiration, which has generally preceded such an occurrence, would be almost conclusive evidence as to the existence of polypus of the larynx. Other strong diagnostic testimony to the same effect may occur in the nature of the respiratory sounds, as in obs. 29, in

which the patient was able, by a quick movement of inspiration and expiration, to imitate the noise made by a *valve* opening and closing alternately; or in the assurance on the part of the patient that a foreign body seems to him to be forced by the respiratory acts against the chink of the glottis, and to be the cause of all his sufferings (obs. 15, 29, &c.); or finally, by the surgeon being enabled to feel with his finger introduced far into the patient's throat, a fleshy mass engaged in the rima glottidis, and perhaps projecting upwards from it (obs. 16).

The *size* of the tumours varied in different cases, from that of a pea to that of a pigeon's egg, or even larger. In some instances, they were pediculated, in others sessile upon a broad base.

The diseases upon which this local affection was engrafted, in the instances from which M. Ehrmann's observations were drawn, were, so far as is mentioned, *phthisis pulmonalis*, in four cases; *syphilis*, or what seemed most probably to be such, in three; *chronic disease* of the *urinary passages* in one; *scrofula* in one; in the remaining cases, the individuals were either healthy, or no mention is made of their general condition.

Their *ages* respectively were as follows: Between 1 and 5 years, one; 5 and 10, two; 10 and 20, three; 20 and 40, three; 40 and 60, nine; above 60, three; in the others, the age is not specified.

The *duration* of the complaint is given as twenty weeks in one case, some years in another, eighteen months in a third, several weeks in a fourth; one, two, and three years in as many others; but generally the time ascribed is rather indefinite, as "*a long time*," "*some time*," &c. Indeed, in some of the patients it would have been difficult to fix any reliable date for the commencement of this laryngeal affection, because they had for some time previously been the prey of disease of the respiratory organs, which are generally attended with cough, alteration of the voice, and the like symptoms.

As to the *causes* of the morbid condition of the larynx, we can glean but scanty information from the observations recorded, excepting with reference to a few cases. In a child, the subject of the seventh observation, which we have already quoted at length, we are inclined, from the narration of the symptoms, to consider *an attack of croup* as the starting-point and the exciting cause of the modified local nutrition which led to the formation of the polypus. And in the boy whose history is recorded in the seventeenth observation, which we have also adduced in connection with the other, the same cause may be assigned. In the latter case, the child had repeated attacks of croup; very trifling causes, "the slightest chilling, exposure to a current of air, excited invariably a very hoarse cough;" and how far this excessive and unusual sensitiveness of the mucous membrane may itself have depended upon some peculiarity of organization which occasioned both the cough and the development of the polypus, we cannot of course determine. We are told, however, that the patient was of "a delicate and scrofulous constitution," and we know that in such individuals the mucous membranes, particularly of the respiratory organs, perhaps, are very commonly thick, puffy, and very vascular, and, we may infer from such a constitution, prone to hypertrophy, requiring only the inciting action of such a cause as existed in this little individual to develop some local out-growth.

In like manner, we may certainly admit that it is possible that the polypi which grew upon the mucous membrane of the larynx in several others of the cases recorded by M. Ehrmann, may have taken their origin and outstart in a frequently repeated *catarrhal affection* of this membrane; in some of these patients, such a morbid condition is noted as having existed, and in

others their occupations exposed them constantly and inevitably to vicissitudes of the weather, which were well calculated to induce such a vascular turgescence of the laryngeal membrane. But why this particular result should have ensued in this limited number of cases, when thousands of others, possessing similar constitutions, and exposed to like disturbing influences, suffer from repeated attacks of croup and catarrh, and escape without the production of polypus of the larynx, we cannot fathom.

Several of the patients whose histories are recorded by the author, were laboring at the same time under *pulmonary phthisis*. We know that ulcerations of the lining membrane of the larynx, dependent in some measure, at least, upon the direct irritative action of the sputa, as they pass over this surface, are very commonly met with in phthisical subjects, and it certainly would not surprise us if some other modification of nutrition, as, for example, *a polypus*, should be the result of the same cause. But, on referring to the "*Researches*" of Louis, we find no mention of his having seen any such outgrowth in the numerous patients whom he observed, and in the subjects which he examined after death; and we are struck, moreover, with the fact that, in his examinations, the *posterior surface* of the larynx was much more frequently the seat of ulcerations than the anterior; while, on the contrary, in the observations of M. Ehrmann, the polypi were found upon the *anterior* surface of this organ in almost all the cases.

The *syphilitic dyscrasia* may be looked upon as another predisposing cause of the production of polypus of the larynx. M. Ehrmann reports several instances in which this constitutional taint co-existed with the local affection in question. But, in the greater proportion of the cases, there seems to have been no assignable cause for the local phenomenon, and we are left to "float, like Pyrrho, on a sea of speculations," with reference to them.

Pathological Anatomy—Histology.—Under this heading, M. Ehrmann offers some very interesting and instructive observations. He says, "the form and structure of polypous tumours are variable; they are sometimes roundish, sometimes irregularly shaped, united in clusters, granular, lobulated, most frequently pediculated; they occasionally resemble condylomata in appearance. Their attachments, whether broad or slender, single or multiple, are rarely traversed by blood-vessels of any size. They may occupy the whole internal surface of the larynx, but they are attached more commonly about the glottis, particularly to its inferior ligaments; they are more rarely found in the substance of the aryteno-epiglottic ligaments, and in the ventricles of Morgagni. The epiglottis is the favourite seat of those vegetations which are supposed to be syphilitic.

"Polypus of the larynx is constituted sometimes of fibrous or fibro-cellular tissue; and in other cases of all the elements of the mucous membrane united, but modified in character. When the tumour belongs to the first class, it assumes the form of a firm and compact mass, resembling that which exists in the proper fibrous tumours; in this respect, the tissue composing this species of polypus may be compared to that of the ligaments of the glottis, or to that which is found in their immediate vicinity; thus we see the pedicles of these tumours originating in the fibrous appendages, and blending with the fibrous element of the vocal cords, an observation which has been already made by Albers. The tissue composing these tumours is traversed by very minute blood-vessels, and their external investment consists of a thin layer of the mucous membrane modified in its structure." The polypus described in the twenty-second observation was of this nature, as is proved by the description which is given of it when examined by the aid of the microscope—(p. 32).

Of the other variety of polypus, that in which the tumour is composed

chiefly of the *mucous membrane*, the subject of the twenty-ninth observation affords a very good illustration. It was composed chiefly of the epithelium, which was perfectly recognizable by the form and arrangement of its cells. Of this kind of polypus the author thus speaks: "It is probable, then, as the result of these data, that hypertrophy of the mucous membrane involves especially its *epithelial layer*, since it is this which we find in superabundance in the mass which forms this variety of tumour; the *areolar* tissue which is met with in it belongs, as is well known, to the structure of all the mucous membranes; and if some fibrous tissue should occasionally be found at the base of these vegetations, it is as if for the purpose of forming a transition between the true mucous polypus and the fibrous."

M. Ehrmann coincides with the opinions held by Lebert, with reference to mucous polypi. The latter distinguished pathologist thinks that, instead of calling these growths "*polypi*," they should be considered as simple excrescences or *hypertrophies*, either of the epithelium, or of a circumscribed portion of the entire thickness of the mucous membrane, or of only a portion of the sub-mucous cellular tissue. This view of the subject simplifies it very much, and is, we have no doubt, consonant with facts.

The reader will find, by reference to the observations of the author, a great many minor points of interest, which we have not been able to notice in this sketch, because we did not think it expedient to extend our limits.

As to the treatment of polypus of the larynx, M. Ehrmann suggests no other method than that of removing it through an opening made along the middle line of the larynx and trachea, and we doubt very much if it be possible to relieve the patient in any other manner. In one of the cases reported (obs. 15), the surgeon, M. Brauers of Belgium, opened the patient's larynx, and endeavoured to destroy "the excrescences which filled the cavity of the organ," by the applications of the acid nitrate of mercury, and finally of the actual cautery: but, so far from removing them, they increased in volume after each cauterization, and although the patient was still living at the date of the report, his death was confidently expected. We presume that no other result can be anticipated from similar applications which might be made to the interior of the larynx, in such cases, after the method of Dr. Green.

M. Ehrmann reports *five* cases in which the operation was performed upon human patients, and *two* upon animals, a cow and a horse. Of the former series we have just cited one. The second instance was in a patient of Trousseau and Belloc (obs. 18); the man was forty-two years old, and had enjoyed good health, until about eighteen months before the operation was performed, during which time the polypus had been growing. The larynx was opened only when it was evident that the patient would otherwise die speedily of suffocation; some arterial and venous hemorrhage occurred when the incision was made, but this was arrested by slight compression. As soon as the canula was introduced into the opening, the patient's breathing was relieved, and he continued to do well during *the five following days:* but then an attack of gangrenous pleuro-pneumonia came on, of which he died in the course of twenty hours. At the autopsy, "all the left half of the mucous membrane was of a grayish-green colour; the inferior vocal cord was very much swollen, the superior less so; the left ventricle was bathed with an excessively fetid grayish sanies, and occupied by an accidental growth of a lardaceous consistence, and an ash-white colour. This tumour was continued into the space which separates the cricoid cartilage from the posterior part of the thyroid, and appeared a little outside of and behind the larynx. A portion of the thyroid cartilage on the left side was carious. This same tumour projected from the ventricle, when it assumed the consistence and colour of a

mucous polypus, and encroached considerably upon the cavity of the larynx." We will not repeat the post-mortem appearance of the lungs and other organs. In this instance what the termination of the case might have been if the polypus of the interior of the larynx had been recognized and removed, we cannot say.

In the third instance, from Gluge (obs. 26), the larynx was opened, but the patient died soon afterwards. In this case, as in the last, the tumour was not recognized. It was very large indeed, originated on the mucous membrane of the larynx, occupied almost the entire cavity of this organ, and caused a considerable projection externally.

In the fourth case, from Bertherand, of the Strasburg military hospital, (obs. 31,) the patient was a Polish superior officer, sixty years old; his health was good, and he complained only of dyspnœa and a croupy cough, which had gradually increased during two years, and had lately become very severe at times. The operation was performed when the patient was *in extremis*. He did not experience much relief, until some hours after the larynx had been opened and the canula introduced. *The patient died on the ninth day* after the operation, of bronchitis and pneumonia, attended with the formation of small abscesses in the right lung and liver. Moreover, the thyroid body was much enlarged, so that it displaced the pharynx and œsophagus, and it had undergone a cancerous degeneration, as had also the right lung and the liver. But the polypus escaped the notice of the operator during the patient's life, and was only recognized after death; this was the case, as we have seen, in the last three instances, the operation having been undertaken in ignorance of the existence of a polypus, and simply to relieve the symptoms of obstruction.

The fifth patient was operated upon by Mr. Ehrmann himself. We have alluded to this case before (obs. 29). The character of the symptoms admitted of no delay, and their cause seemed to be unmistakeable. The incision was made along the median line of the neck; the crico-thyroid membrane, the cricoid cartilage, and the first two rings of the trachea were divided; very little bleeding followed; a canula was introduced into the opening, and the patient was entirely relieved. M. Ehrmann determined to postpone the conclusion of the operation, until his patient had recovered from the depression and fatigue which she had suffered before it. Accordingly, after forty-eight hours had elapsed, the patient's condition being now very promising, he continued his first incision, *the canula being retained in the wound*, through the thyroid cartilage towards the hyoid bone. The polypus was then removed by excision. The patient did well; on the twenty-first day, the air ceased to pass through the opening, and at the end of a month, having spent a week in the country, she was quite well, and the wound had entirely healed. She was attacked with typhoid fever about seven months afterwards, and died. The larynx was carefully examined; the left inferior vocal ligament, upon which the polypus was seated, presented a few very small granulations upon its surface, and one, rather larger than the rest, was situated at the point of junction of the two inferior vocal ligaments.

In the horse and cow, the operation, performed under similar circumstances to those present in the human patients, was successful.

The author advises that the operation should, if possible, be performed as he practised it in this case, *i. e.*, that the patient should be allowed to rest and recruit after the first part of the operation, and that during the performance of the second part the canula should be left in the windpipe.

We have been exceedingly interested by the perusal of M. Ehrmann's book, and commend it to the attention of the profession.

F. W. S.

BIBLIOGRAPHICAL NOTICES.

Art. XV.—*Elements of Medical Jurisprudence.* By Theodric Romeyn Beck, M. D., LL.D., Prof. Mat. Med. in the Albany Medical College, &c. &c., and John B. Beck, M. D., Prof. Mat. Med. and Med. Jurisp. in the College of Physicians and Surgeons of the City of New York, &c. &c. Tenth edition. Vols. I. and II. Albany, Little & Co. 1851: 8vo. pp. 866—948.

Medical Jurisprudence. By Alfred S. Taylor, F.R.S., &c. &c. Second American, from the Third London edition; with Notes and Additions by R. Egleseld Griffith, M.D., &c. Philadelphia, Lea & Blanchard, 1851: 8vo. pp. 670.

We have placed above, the titles of the two best treatises on medical jurisprudence in our language; both of them new editions of standard works, and both of them bearing unmistakeable evidence of the industry, and research, and discrimination of their authors. It would be difficult to enter upon a discussion of their relative merits in the space allotted to us, nor do we feel at all inclined at this late date to say, where each has so much merit, that one is better than the other. We are perfectly satisfied that either one contains an amount of information which will place the reader in full possession of the elements and practical bearings of the science of which it treats.

Since the publication of the previous American edition of Dr. Beck's classical work, medical jurisprudence has made rapid strides in advance; and one of the best proofs of the fact is contained in the introduction to this edition, viz., that the authors found it necessary to add several hundred pages to their last London edition, in 1842, of which this was at first intended to be merely a reprint. The pages of this Journal, for years past, have borne constant evidence of the untiring and *inevitable* research of Dr. T. R. Beck, whose observations and extracts from foreign and domestic sources have filled that portion of it devoted to medical jurisprudence; and the writer of the present notice bears his testimony to the same effect; for, having taken much interest in the subject, and consequently had occasion to examine the journals, he found it almost impossible to furnish a single novelty to this department in which he had not been anticipated by Dr. Beck. It is almost unnecessary to say that the materials collected by Drs. Beck have been skilfully used, and have been arranged in such a form as to make their work worthy of the period at which it is published.

In one respect we are inclined to be at the same time pleased and fault-finding, and this is in the typography and getting up of these volumes. While the clear type, white paper, and large spaces and margin make them readable, they are too bulky for every day use, a fault in which our publishers are beginning to emulate those of former times, giving us, instead of folios and quartos, royal octavos quite as cumbersome and unhandy. This, however, is a fault of the dress, not of the matter.

Mr. Taylor's work has passed through three editions in Great Britain, and a second one has been called for by the demands of this country; a portion of it, that on poisons, having been previously reprinted from the author's separate work upon that subject.

In each successive edition, Mr. T. has brought down to the period at which they were written, the facts of the science, and the decisions upon the interesting questions involved in medico-legal investigations, corrected by more enlarged experience and matured judgment; and in the volume before us has presented an admirable and well-arranged treatise, in which both the physician and lawyer can find abundant information upon the subjects discussed, well digested, succinctly and clearly stated, and—as justly said by the late and lamented American editor—"of an eminently practical character." It is an

excellent text-book, and yet takes a much higher range than such books generally do.

We cannot close this notice without a brief allusion to the loss which science has met with in the somewhat recent death of the American editor, Dr. Griffith. He was too well known in this community to require a eulogy at our hands, for the greater part of his life was passed here, and the evidences of his laborious habits are to be found in the interesting papers contributed to this Journal and the able works he has published—in the professorial chairs which he filled both here and elsewhere—and in the valuable contributions he has made to various departments of natural history; for in many of these, as botany, conchology, and mineralogy, he was surpassed in acquirements by few. He was exceedingly industrious in his habits, untiring in his zeal for knowledge, remarkably retentive in his memory, reading everything and stowing away for future use, and yet not selfishly gloating over the treasures he had discovered. Such a course would have ill suited one of his cheerful and animated disposition. He loved society both for the instruction and pleasure he derived from social intercourse, and because it gave him an opportunity to impart to others the knowledge he had himself acquired, and which he felt constrained to scatter about him as an outpouring of his own good heart for the benefit of others. He has left behind him the enviable reputation of having contributed to the extent of his ability—and that no mean one—to the cause of science; and we can only regret that his labours are ended at a time when she might have reaped from them still larger benefit. C. R. K.

Art. XVI.—*A History of the Disease usually called Typhoid Fever, as it has appeared in Georgetown and its Vicinity; with some Reflections as to its Causes and Nature.* By W. L. Sutton, M. D., Georgetown, Ky., Maxwell & Co., Louisville, 1850: 8vo. pp. 127.

Dr. Sutton has presented, evidently with great candour, the result of his personal observations upon the particular form of disease which appeared in Georgetown and its vicinity, during the last six years, and believed by him to be identical with the typhoid fever of Louis. Even by those who shall reject as erroneous the remarks of the author in relation to the true character of the disease of which he treats and of typhoid fever generally, the work before us must be considered as one particularly interesting, inasmuch as, admitting his diagnosis to be correct, he has shown very conclusively that enteric fever may occur, in the form of an extensive endemic, unattended by some, at least, of what have been considered its characteristic symptoms.

It is to be regretted that Dr. Sutton was able to make an examination after death in only three of the fatal cases which occurred during the period over which his observations extend. In each of these cases disease and ulceration of the intestinal glands were present. In the first case:—

"The small intestines were red internally throughout their course; near the ilio-cœcal valve they were more highly coloured externally, and internally presented elliptical plates distinctly elevated, and some of them ulcerated in numerous distinct minute points: solitary glands distinctly thickened, and some of them ulcerated; the mucous membrane considerably injected, having veins, distended with dark blood, interspersed."

The liver was "apparently healthy;" spleen not examined.

In the second case, the liver, also, showed no indications of disease; but the spleen was enlarged, almost globular in shape, very red, "and much softened; breaking down under the handling." In the lower portion of the ileum, "several elliptical patches and solitary glands were found slightly ulcerated, without apparent thickening or diminution of the walls."

In the third case:—

"The stomach was moderately distended with air and a little fluid; externally and internally healthy, if we except a small spot just below the central depression, which exhibited a group of innumerable minute red specks, as if

the point of a fine needle had been repeatedly applied. The small intestines in various places appeared diminished in volume, otherwise sound until we approached the lower end of the ileum, where externally it was dark and contracted. Upon laying it open, a number of ulcers were to be seen, varying in size, some not larger than a grain of wheat, others larger than a twenty-five cent piece. They extended to the peritoneal coat. In some of the smaller ulcers, the edges were thickened; in the larger, there was no thickening of the edges. The intermediate spaces were filled with enlarged veins containing dark blood. Near the ilio-cœcal valve there were some large, very irregularly shaped ulcerations. In the cœcum and upper part of the colon, were similar ulcers, also near the anus. The colon externally was of a healthy colour, but very much diminished in calibre; internally, throughout as dark as a mucous membrane could well be. The rectum in the same condition. Some of the mesenteric glands enlarged. There was very little blood in the vena cava or any of the large veins. Indeed, there appeared to be a very considerable scarcity of blood in the cutaneous veins and those in the cavity of the body. Liver and pancreas healthy. Spleen enlarged and softened."

Dr. Sutton presents a very full history of the disease, as observed by him, from its onset until its termination in convalescence or death. From his remarks on its diagnosis, we extract the following list of symptoms, which are considered by him as those of most importance, presuming that the patient is seen during the first week.

"A tongue whitish, moist, or beginning to become clammy, with red papillæ showing through the white coat, and reddish edges and tips, giddiness, and tinnitus aurium upon rising; more or less uneasiness of the head; tenderness at the epigastrium or right iliac fossa; tympanitic state of the abdomen; diarrhœa, the dejections of a dirty yellowish colour, very liquid and very offensive, of a cadaverous odour, with or without griping; great muscular debility; a pulse increased in frequency, increased or diminished in volume and strength; occasionally a cadaverous smell of the body."

Although, Dr. S. remarks, we may have a case of typhoid fever in which a majority of the above symptoms are absent, or a majority of the symptoms without the fever, yet when "we have something like the assemblage just enumerated, we should be on the look-out for the disease."

The cadaveric smell of the body, Dr. S. has observed in many patients ill of typhoid fever; in others he has not detected it; he has also observed it in patients labouring under various other diseases.

In the disease described by our author, the rose-coloured spots upon the skin were not observed. "I have," he remarks, "examined patients daily, during the whole course of the disease, without finding a single spot. I will add, too, that I have not confined my examinations to a few patients or to a short period. It is my custom to examine all whites."

Of his medical friends of whom he made inquiry upon this point, one only had seen the eruption: it occurred in about one-half of the cases in his practice. In one instance Dr. S. saw them, in a relapse of the disease brought on by indiscretion in eating, they continued for only four days. They were absent in the primary attack.

Dr. S. has found sudamina to occur rather frequently; in perhaps a third of the cases.

It is successive in its eruption, and goes off by leaving very thin scales. "I have seen," he adds, "this eruption continued for several weeks after restoration to health, but most commonly it disappears about the time when convalescence is well established. I have seen one case, at least, in which it did not appear until the patient was in *articulo mortis;* at least, I examined for it in the afternoon without finding it; but at midnight I found the patient dying, with a plentiful eruption upon the neck and lower part of his face."

"Desquamation of the cuticle has been observed something more frequently than sudamina. The scales of this desquamation are too large to have been occasioned by the debris of the sudamina. Its most frequent seat is the chest and back, especially about the loins and sacrum."

Thoracic symptoms of a grave character Dr. S. has rarely observed. He has

frequently seen a short, dry cough—"such as is usually denominated stomach or worm cough. Occasionally, there has been a slight rhonchus in respiration. Towards the termination of fatal cases, the respiration becomes more irregular, and sometimes hurried. The irregularity is often more marked in a sudden expiration than in anything else."

Of 43 cases of the disease, 26 occurred in persons between 15 and 30 years; nine in these over 30; and eight under 15. The proportion of whites to blacks was, in the bounds of Dr. S.'s observations, about 108 to 100. Twenty-seven out of 43 cases occurred in males, and 16 in females. Eleven of the cases terminated fatally, and 32 in recovery.

Of 192 cases, there occurred in

Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.
3	12	16	8	26	21	21	25	26	17	8	9

Total.	Winter.	Spring.	Summer.	Autumn.
	31	55	72	34

Of these there were males 104. Females 88. Whites 118. Blacks 74.

Forty of the above patients were 40 years old and upwards.

Residents of Georgetown appear to have been equally liable to the disease as were young persons recently arrived there from the country. The population of the town is, however, we are told, stationary to a very great degree. The principal ingress being from students to the schools, male and female, and journeymen mechanics.

"We have," remarks Dr. S., "about two hundred students from a distance. Among these I have not known of more than eight or ten cases of fever in the six years; and I do not know that any one of them had been there less than a year. Neither do I know, with the exception of four, that any case was one of typhoid fever. I presume, however, that some of them were."

Insalubrious dwellings and localities appeared to have been the most common places for the occurrence of the fever; it was not, however, confined to these. In a considerable proportion of cases, the attack of the disease appeared to Dr. S. to have been brought on by an undue exposure to cold.

Dr. S. does not believe that the disease originated in or was propagated by contagion.

"A contagious disease," he remarks, "whose infection may remain dormant in the system for seven months" (the allusions are to facts detailed in the work before us), "or may be quickened into life in as many hours; which may appear in half a dozen members of a family, in as many days, without any chance of introduction from without, and then spread no farther in that family or neighbourhood; which can originate in divers families in the same village or neighbourhood—these families having no communication with each other; which can originate frequently at divers points in the country, and infect but one or a few persons—which, in one word, shall frequently set at naught all the laws of contagion as usually understood, although it may, at times, seem to obey these laws, is a contagious disease which I do not profess to understand. Neither does it seem to me that anything is gained in etiology by calling in the aid of such an agent."

As ordinary sequelæ to the fever described by him, the author enumerates phthisis, in several instances; œdema of the face and limbs; loss of the hair, desquamation of the cuticle; in one case, a very painful affection of the tibia, accompanied by some tumefaction of the integuments, which were, also, exceedingly tender to the touch. In another case, a very painful swelling of the leg, the limb remaining permanently enlarged after the disappearance of the pain.

The disease, as observed by Dr. S., pursued, in general, a protracted course. In two cases, death occurred on the sixth day, from the presumed date of the attack. These, he thinks, were the shortest courses of the fatal cases that have occurred under his notice. In one case, complete convalescence was established on the eighth day. From two to three weeks, Dr. S. lays down as the average duration of the fever. In one case, it continued, however, for six weeks, and in another the patient was confined for twelve weeks or upwards.

"In general," he states, "there is a very gradual aggravation of symptoms for six or eight days; then there are from four to eight days, during which no appreciable change takes place. Then there is a very gradual amendment for five or six days more, and then a more rapid improvement."

It would seem that the severity of the attack had very little to do with its duration.

The following quotation is from the author's section which treats of the prognosis of the disease:—

"Great frequency of pulse, long continued, profuse diarrhœa, quick respiration, especially if performed irregularly; dry, black tongue, profuse hemorrhage at the latter stages of the disease; subsultus tendinum; low muttering delirium; loud raving, great prostration, discharges of flatus, strangury, suppression of urine, restlessness, and an impression of being well when very grave symptoms are present, are among the symptoms indicating great danger. If I were to select three symptoms indicating much peril, I would take a frequent weak pulse, profuse and continued diarrhœa, and a dry black tongue. Whatever other symptoms may be present, I hold that a combination of these is of evil import. I do not now remember a case of doubtful aspect in which one or more of these symptoms were not present, and the converse is true: I do not remember a case in which the three were united which was not a grave case. As one or more of these three, united with other symptoms enumerated as indicating danger, are present, so will the danger of the case be.

"We must remember, however, that there is no disease in which there is more reason to hope against hope. Thus, in a case in which there had been continued diarrhœa, with quick pulse, and great muscular prostration, profuse epistaxis came on in the last stage, and death seemed to be averted only by plugging the nostrils. Yet recovery was at last rapidly effected. It may be proper to notice a case which I saw in 1849. A young gentleman had been very low for more than a week. Among the grave symptoms was free hemorrhage from the bowels. After one of these discharges, he sank very much, his pulse became very frequent, and too weak to be counted, and it seemed as if death must speedily ensue. He seemed at least as low, if not lower than the last patient. Yet he recovered, notwithstanding the continuance of hemorrhage from the bowels for twelve or fifteen hours after. Again, in a case of extreme prostration, profuse diarrhœa, delirium, and where, in truth, the patient was abandoned by his physician, the pulse remaining tolerably steady, recovery took place.

"Thus it is that, in all cases, we must lean to the side of hope. On the other hand, we must not forget that there is another side to the picture. In a few cases in which the disease has apparently been mild, when in fact no very grave symptom has shown itself, when the convalescence is considered as already set in, a perforation of the bowel may take place, and death speedily close the scene. I have seen a case in which, for four weeks, the pulse ranged from 60 to 80, the bowels never much troubled, the tongue nearly natural, no undue heat of skin, indeed no bad symptom occurred, if we except a moderate but obstinate pain in the occiput. During all this time, the patient sat up more or less every day, generally in a room adjoining his bedroom, yet, at the expiration of this time, he began to become deaf, his pulse slowly increased in frequency, his tongue became gradually coated and dry, presently delirium set in, and during the sixth week he died.

"Again, a case may be severe, but improvement may appear to have commenced and continued for two or three days, when an aggravation of symptoms may take place, and the patient steadily grow worse, until a fatal termination ensues. This aggravation may occur without any cause apparent to the physician or nurse. It is frequently charged upon improper indulgence. If this last has been the cause, we may hope, by diligence and attention, to remedy the evil, but if it is not, the prospect is truly gloomy, as I do not remember a case of recovery from this state.

"I have found profuse hemorrhage, in the last stage, much less fatal than I was prepared to expect from reading or reflection. I remembered but ten cases in which it occurred. In two only did death follow. In two cases where I

was satisfied a perforation of the bowel had taken place, and when the patient evidently was to live but a few hours, each was impressed firmly with the idea that nothing was the matter. I have found strangury and suppression of urine both to be symptoms of evil import. The patient from whom it was necessary to draw the urine daily for six weeks was the only case of recovery in which either symptom was discovered.

"The case mentioned, in which a general rigidity of the muscles occurred, recovered. I ought, perhaps, to state that there was no permanent rigidity, but it came on when the body was to be moved. It continued to recur for thirty-six or forty-eight hours."

Thus far, our analysis of Dr. Sutton's work has been confined exclusively to the personal observations of the author. We come next to his view in reference to the character of the particular form of disease described by him, and of the nature of typhoid fever in general.

In regard to the supposed specific character of typhoid fever, and its entire distinction from typhus fever, our author calls in question the validity of the evidence upon which these opinions are based.

"If this subject could be settled," he remarks, "by the authority of a very considerable number of highly eminent men, it might be now considered as put to rest. But whilst expressing my unfeigned and very high respect for, and confidence in, these gentlemen, I am not yet prepared to consider the matter as placed beyond controversy. They prove, conclusively, that, according to their observations, a certain train of symptoms has almost always (always, if you please) been followed by ulceration of Peyer's plates; that after another train of symptoms, those plates have never been found ulcerated. Hence, they conclude that these two trains of symptoms denote two diseases specifically different. They may be right, but are they necessarily so? According to my observation, and that of physicians immediately in this vicinity, the rose spot does not appear as a symptom of typhoid fever. Am I to set this against the observation of the profession, and conclude that this eruption is not characteristic of the fever? Assuredly not. But the symptoms of typhoid and typhus fever do not differ more than those which attend different epidemics of bilious fever. For example, we may have, in one summer, an eruption of red pimples or blotches, great nausea and vomiting, and bilious diarrhœa to attend it. Perhaps the next summer, it will be without either, and obstinate costiveness be present. Yet we hold the two years to have produced the same disease, very much modified, it is true, in appearances. Again, is there more difference between the symptoms of typhus and typhoid fever than between those of the ordinary intermittent, and aggravated forms of bilious fever, of the remittent and congestive types? Yet we consider them essentially the same disease.

"Dr. Power informs us that the vessel Rio Grande brought (to Baltimore) seventy cases of *typhus*, and that four of the seamen and several steerage passengers had *typhoid* fever. Professor Drake found, among the emigrants at Gross Island, patients with typhus and typhoid fever, *i. e.*, those with rose spots and those with petechiæ. These are rather equivocal evidences of the non-identity of the two diseases, yet certainly not proving their identity. But we find others as well situated to observe, and as well qualified to judge, view the matter in a light very different."

Dr. S. quotes the account given by M. Landouzy (*Archives Générales*, Jan. et Feb. 1842) of an epidemic fever which prevailed at Rheims in 1839–40, which, if it were possible to identify a disease by symptoms, was unquestionably one of *typhus fever;* but, in the examinations made in six fatal cases of this epidemic, "the intestinal lesions characteristic of typhoid fever were present." In reference to this fact, Dr. Bartlett queries whether, under certain circumstances, the cause of both typhus and typhoid fever may not be so commingled as to give rise to a mixed disease, in which there is a combination of the elements of both. Professor Wood also suggests the occurrence of this occasional amalgamation of the two diseases.

"Gerhard acknowledges to have met with six cases of true typhus in which the intestinal lesion resembled dothinenterite, and admits that the follicular ulceration occurs in the British epidemic, which he regards as true typhus (*'Dickson's Practice,'* 412)."

"With regard to the amalgamation of specific diseases," Dr. S. observes, "thus suggested by Profs. Wood and Bartlett, it would certainly ill become me to deny the possibility; but, inasmuch as the explanation seems to me to be gratuitous, and, so far as I know, unsupported by analogy, but rather contradicted by it, I think it ought to be entertained with caution and hesitation. Under such admissions by Bartlett, Wood, and Gerhard, I do not know that it would be too much to say, in the words of *Gaultier de Claubry*, that there are no means of distinguishing typhus from typhoid fever, in relation either to lesions or the symptoms of the two diseases. Again, 'the identity of the two diseases is henceforth put beyond a doubt.'—*Bartlett*, 302."

Dr. S. urges the fact that the rose-coloured spots are absent in many cases of the so-called typhoid fever—in five out of fifty-four cases observed by Louis; in one-tenth of the cases, according to Bartlett; in about one-fourth of the seventy cases referred to by Chomel and Genest; and in all of the cases which fell under the notice of himself. Is, then, he asks, this eruption to be considered an essential symptom?

"Is it true that any eruptive fever ever prevailed in which one-fourth or even one-tenth of all those affected failed to exhibit the eruption? Or is there any instance in which an eruptive fever prevailed for six years in any one location, without the eruption being observed, though diligently sought for?"

The space of time during which this eruption makes its first appearance, Dr. S. thinks rather too long for a specific eruption—that is, if we are to reason on this disease from analogy. Its appearance is said to occur from the sixth to the twenty-fourth or thirty-fifth day. I do not, Dr. S. remarks, know of any exanthem in which so much latitude in the period of eruption is allowed, there being nothing to interfere with its regular development.

Dr. S. insists that, as the eruptions, rose spots, and petechiæ are considered as of much importance in distinguishing typhoid from typhus fever, they ought themselves to be distinguishable; and yet three out of six cases investigated by Dr. Shattuck exhibited both eruptions. According to Dr. Stewart (*Bartlett*, 294) in the more severe cases of typhoid fever, the eruption "may exhibit, during the period of increase, four different states, being florid, dark, livid, and petechial. When the hue of the eruption is florid, it disappears readily under the finger; when dark, it still disappears, but more slowly; when livid, semi-petechial or pseudo-petechial, as it has been called, it is only partially effaced; and when petechial, it is not at all affected by pressure. In many cases, it remains florid throughout; in others, it presents one or more, and in not a few, all these alterations."

This change, from rose spot to petechia, was also observed by Prof. Drake, at Gross Island, and by Dr. Upham, at Deer Island Hospital.

"Respecting this eruption," says Dr. S. "there is another point not altogether unworthy of consideration. Prof. Bartlett refers, p. 108, to several cases in which this rose-coloured eruption appeared during a relapse after an attack of this fever; and a similar case is noticed in this essay. This, it seems to me, is proving too much. I do not know that the eruption peculiar to small-pox, measles, or any other exanthem has been observed to reappear after having disappeared in the regular course of the disease. If my notion on this point is correct, reasoning from analogy, we should not expect the eruption of typhoid fever to reappear, considering it an eruptive disease. If, then, the eruption in the second instance is accidental, not proper to the disease, the same eruption appearing in the first instance, may be accidental, not essential to the disease, but dependent on intestinal irritation." Again, he remarks, "Is it unfair to doubt the distinction between the rose spot and petechia? If the same identical spot is a rose spot one day, a petechial the second, and a rose spot again on the third, it does seem to me that distinguishing them apart is alike impossible and useless. Hence we must not be surprised, nay, we may expect, that the rose spot and petechia shall eventually turn out to be the same eruption under different modifications."

It is the peculiar intestinal affection, the inflammation and ulceration of Peyer's patches, which Dr. S. thinks those who place typhoid fever among the exanthems ought to consider the characteristic eruption. It is held, he re-

marks, to be characteristic of the disease—essential to it—that it is found in no other acute disease, if in any at all. Our author adduces facts which, in his opinion, render the doctrine that the presence of the intestinal disease referred to is the characteristic mark of a specific fever, extremely doubtful. The first class of facts are founded upon the statements of Lombard of Geneva, Shattuck of Boston, Fouquier, and Prosper Dor, that they have observed cases which, during the lifetime of the patient, presented the characteristic symptoms of typhoid fever, but in which, after death, no disease of the elliptical plates of Peyer was discoverable. The second class of facts are founded upon a series of observations, showing that the intestinal disease, supposed to be peculiar to and characteristic of typhoid fever, is met with in various other and very dissimilar affections. Thus, Broussais found it in a case of intermittent fever, changed into continued fever.

It may be objected, Dr. S. observes, that in this and some other examples cited in his essay, the ulcerations are not those peculiar to typhoid fever. Bartlett states, after Chomel, "that one of the most constant and uniform characteristics of secondary lesions, consisting generally of specific inflammations, is the fact of their being *disseminated;* of their occupying numerous and circumscribed spots in the tissues and organs of the system." "Now, in every respect, the intestinal lesion of typhoid fever corresponds to this class of pathological alterations. It is disseminated, occupying the same glandular tissue at different points of the intestinal mucous surface." It is true he does not assert that the ulcerations are confined to the glandular structure and the mucous membrane covering it; but such is clearly the impression conveyed by the language.

"That such is not always the fact, I have evidence," says Dr. S., "to me conclusive. In Sylla, the autopsy of whom is given in this essay, many of Peyer's patches, and of the solitary glands, were ulcerated, and, for aught I know, the ulcerations may have been confined to the bounds of the glands; but at the lower end of the ileum there were several very irregular ulcerations, one of which was two inches long by one and three-quarters wide; a tongue of membrane not ulcerated, running up the broad end of the ulcer about half an inch wide and three-quarters long. In the cœcum and colon were similar irregular ulcerations. I hold that these ulcerations were not situated in Peyer's plates at all, because the form and proportions were not such as to admit that interpretation. Or, if they were so situated, the contiguous membrane must have been involved. I had the pleasure of showing the casts of some of these ulcerated portions of intestine to Prof. Bartlett, who recognized them as examples of the lesions of typhoid fever."

Dr. S. adduces from Horner (*Path. Anat.* 307) an example of ulceration of the jejunum and ileum in a patient dead of pulmonary phthisis; also the statement made in Wistar's Anatomy by Pancoast, that the intestinal glands are frequently the seat of lesion in phthisis as well as in typhoid fever—no attempt to discriminate between them being made; and a case of phthisis which fell under his own notice, in which thickening, increased coloration of the patches of Peyer, and of the solitary glands of the ileum, were detected after death. Dr. S. also refers to the fact that Mackintosh detected ulceration of the ileum and colon in fatal cases of infantile remittent fever—that the same ulceration is common after death from small-pox—that it is met with in those who die of painter's colic—in children who die during dentition, and a number of cases, including one of dysentery, recorded by Abercrombie in his work on the stomach. Of these last, Dr. S. remarks:—

"Here, we have a lot of cases, some of which, by symptoms and appearances on dissection, were pretty certainly cases of what would now be called typhoid fever; some in which the symptoms would seem to indicate that to have been the disease, but the dissections did not show the peculiar lesions of typhoid fever, but either a corresponding lesion situated in the colon or an analogous one situated in the ileum. The last is considered dysentery by the author, but it seems doubtful if it was not truly one of typhoid fever. At any rate, the appearances on dissection were analogous to those having a striking resemblance to typhoid fever."

"But it may be urged against many of the cases adduced that they are not

described with sufficient minuteness to enable us to form a proper opinion as to their value. That English writers do not discriminate between typhus and typhoid fevers. That many cases which have been described as infantile remittent fever; and even cholera infantum, were in truth typhoid fever. In one word, that things identical have been considered as altogether dissimilar. To prevent, on the one hand, confounding things which are really different, and, on the other, separating those which are alike, is many times a work of great difficulty. Such is the matter now in controversy.

"Let us recapitulate this section somewhat. I have declared that the typhoid eruption, the rose spots, though diligently sought for, had not been found in this vicinity. I have exhibited proof that, in some considerable proportion of cases, say from one-tenth to one-fourth, it is admitted to be absent. That in some cases, whether of typhoid or typhus fever it matters not, both these and petechiæ appear upon the same patient. That in some cases they are convertible into each other, running from rose spots to petechiæ, and *vice versâ*. That the lesions of the elliptical plates have not been found where, from the symptoms, we have a right to expect them. That these lesions have nevertheless been found where we had no right to expect them. That in other cases we have found analogous lesions in the ileum, and corresponding lesions situated in the colon.

"It may be argued that the case quoted from Broussais was one of genuine typhoid fever, occurring after one of intermittent fever; or that it was typhoid fever from the beginning. The history of the case, as given, does not seem to warrant that conclusion. Still the author may have had his attention so fixed upon some features of the case, as to prevent his seeing others important to the proper understanding of it.

"In the cases from Horner, there is evidently no suspicion entertained by the author, that anything of what is usually called fever affected the patients. Matthew's case, given before, I considered one of pure consumption, and there was nothing to change my opinion; and I have the satisfaction of having a confirmation of this opinion in the judgment of Dr. Bartlett. Perhaps it would not be uncharitable to suppose that some of the cases reported as infantile remittent, or even as cholera infantum, were in truth those of typhoid fever, as I cannot conceive that it would be difficult to confound them; but I should suppose that painter's colic ought not to be so confounded.

"Upon a careful examination of the whole ground, shall we conclude that the lesions of Peyer's plates are invariable and characteristic of typhoid fever—that they are to be found in no other disease? Truly, I cannot bring myself to do so. Shall we conclude that they do not indicate a distinct form of disease, or even a distinct disease? I am not prepared for that either. Shall we say that they are an accidental symptom which may occur in many different diseases, and even exist independent of other symptoms? It behooves us to be cautious in this matter. In our profession, we have had a sufficiency of hasty conclusions, drawn from insufficient observations, which have been replaced by other conclusions drawn from facts equally unsatisfactory. I hope we shall leave this matter under investigation, until we shall have accumulated facts sufficient to enable us to come to conclusions which shall remain permanent."

Such, in brief outline, are the objections advanced by Dr. S. to the validity of the views entertained by many of the leading physicians of Europe and America as to the distinct and specific character of typhoid fever. They are presented with the utmost candour, and evidently in good faith, from a strong conviction of their weight, if not their conclusive character. Some of them are deserving of a serious consideration, while others appear to us rather specious than real.

Of the actual existence of typhoid fever, as described by Louis, Chomel, and others, connected with, and perhaps dependent upon follicular inflammation of the intestines, there can be no possible doubt; the difference which exists between its pathological nature and characters, and those of ordinary typhus, is, in our opinion, still an open question. If typhus fever depends essentially upon a certain morbid condition of the blood, as is probably the case, then we can readily understand how typhus and typhoid fevers may co-exist in the same individual with a combination of the characteristic symptoms of both.

We have never seen a well-marked case of typhoid fever that has proved fatal, in which, when an examination after death has been made, the peculiar intestinal lesions were absent, though we have, in a few instances, detected them in cases of well-marked typhus fever, occurring in immigrants, landed with the disease upon them from on board of infected vessels, as well as in cases among the same class of persons, in which, during life, the distinctive symptoms of typhoid and typhus fevers were so completely blended as to render it doubtful to which of these forms of disease they properly belonged.

The same condition of the patches of Peyer, and of the solitary glands so generally observed in fatal cases of typhoid fever, is unquestionably observed in patients who have died of other diseases. It is almost invariably met with in children who have died of what has been termed infantile intermittent fever; but this affection, from a careful analysis of its symptoms from its onset to its close—taken in connection with the lesions discovered after death—I am well convinced, is the same disease as the typhoid fever of the adult, modified, and that very slightly, by the age of the patients. The same lesions are invariably present also in infants, who have perished from genuine cholera infantum; and even here, the disease bears, in many of its features, so close a resemblance to typhoid fever as to lead to a suspicion that it is closely allied, if not identical, with it. Acute or chronic inflammation of the Peyerian patches terminating in ulceration, is, however, one of the most common lesions discovered in infants that die during the period of suckling, and in cases where, during life, there could be no suspicion of the presence of typhoid fever. In the adult, also, if we are to depend upon the apparently candid and careful statements made by observers of respectability, the same lesions have been discovered after diseases having nothing in common with typhoid or typhus fever.

Our own observations have convinced us that the typhoid is a distinct disease from typhus fever. This conviction has resulted from a consideration as well of the well-marked distinctive symptoms by which it is attended throughout its progress, whether towards convalescence or a fatal termination, and the lesions discovered after death, as of the peculiar circumstances under which the disease ordinarily occurs, so very different from those productive of genuine typhus fever. Our diagnosis has been made up from the whole of the symptoms present in each case, without reference to the occasional absence of a single symptom, or to the occasional presence of those not usually met with in the disease.

While such, however, are our convictions, we feel no disposition to turn a deaf ear to whatever objections to them may be candidly presented. Our aim is truth, and in pathology, truth can only be attained by the accumulation of careful observations, and the utmost freedom of discussion in reference to the accuracy of these observations, and the validity of the deductions drawn from them. We ask, therefore, for the work of Dr. Sutton a careful perusal; let the views advanced by him be cautiously weighed, and adopted or rejected as they shall be found valid or invalid. D. F. C.

Art. XVII.—*Illustrations of Syphilitic Disease.* By Philip Ricord, D. M. P., Surgeon to the Venereal Hospital (Hôpital du midi), Paris, &c. &c. Translated from the French by Thomas F. Betton, M. D., M. A. N. S., Fellow of the College of Physicians of Philadelphia, &c. *With the addition of a History of Syphilis, and a complete Bibliography and Formulary of Remedies, collated and arranged* by Paul B. Goddard, M. D.; with fifty large quarto plates, comprising 117 beautifully coloured Illustrations. Philadelphia, A. Hart, late Carey and Hart, 1851.

Good clinical reports are much more available and instructive to a practicing surgeon than formal treatises, just as the study of the classic marbles of ancient and modern art is more beneficial to the sculptor than libraries of critiques on the correct and beautiful; and the more faithful the transcript of

nature in either case, the more valuable is it to the student. In this view, we cannot but place a very high estimation upon the "*Clinique Iconographique de l'Hôpital des Vénériens*," of which the volume before us is a translation. In it, M. Ricord has recorded the experience of his hospital; and when the author's acuteness and accuracy of observation are considered, together with the vast field which is afforded for their display in the wards of that institution, the value of the book must be admitted. It contains, moreover, drawings from nature, executed by the best artists, which are as faithful representations of the cases presented to the inspection of his clinical pupils as could be provided, and indeed every one will confess, we are sure, the beauty and fidelity of the illustrations.

The views of M. Ricord are so well known, that we design, in this notice, simply to inform our readers as to the arrangement and the merits of this particular edition of his book.

The *primary symptom of syphilis—the chancre*—is first illustrated by reports of cases and by drawings. It is exhibited in a variety of situations, on the penis, in the urethra and bladder, on the neck of the uterus, in the vagina, at the anus, on the breast, on the groin. Its varying characters, too, are commented upon, and the conditions of these modifications relating to peculiarity of the tissue affected, to the general condition of the system, or the vascular state of the seat of the ulcer. These varieties are the healthy, the indurated, the phagedænic, the diphtheritic, &c. Many experiments are detailed to show the effect of inoculation with the matter secreted by a chancre, and which establish the fact that *such matter*, whether taken from a chancre on the external genitals, the urethra, the neck of the uterus, the bladder, the anus, the breast, or the mouth, or from a chancrous bubo, or from any other source, will, if properly inoculated, always produce a *chancre*, and that this result will not follow inoculation with simple pus or muco-purulent matter, such as is formed in *blennorrhagia*. The leading points of this interesting and exceedingly important matter are expressed in a brief review by M. Ricord of the report presented to the Academy with reference to this subject (pp. 144—154)—a report founded upon some cases which were submitted to the Academy by M. Ricord. We need scarcely add that our certain information upon this subject is due to the investigations of M. Ricord himself.

The volume contains several beautiful representations of vegetations sprouting from the urethra, from the surface of the glans, from the labia of the female, and from the anus. In some instances, these appeared to have arisen independently of any local specific cause; sometimes to have resulted from the irritation of a venereal agent.

The *constitutional* contamination from syphilis is illustrated under the divisions of *secondary* and *tertiary symptoms*. This distinction is based upon the phenomena attending the progress of the disease—certain tissues, as the skin and the mucous membranes, being invaded before certain others, as the fibrous tissues and the bones.

The *secondary symptoms* are presented to us in the form of mucous papula of the vagina, anus, and mouth; of the varieties of cutaneous eruptions, of iritis, &c. And the *tertiary symptoms* are described as "gummy tumours," (circumscribed indurations of the areolar tissue, which sometimes disappear under treatment, but more frequently, perhaps, suppurate;) sarcocele, ulcerations about the fauces, inflammation of the periosteum and of the bones, caco-plastic degeneration of, or deposits in, the muscular and osseous structures, caries and necrosis.

We have also read with great interest the details of several cases descriptive of the history of this horrid disease from the formation of the primary ulcer to the death of the patient, and including the result of the *post-mortem* examinations. In this world, at any rate, lust is oftentimes its own avenger.

> "Magne pater divum! sævos punise tyrannos,
> Haud aliâ ratione velis, quum dira libido
> Moverit ingenium, ferventi tincta veneno."

Throughout the volume, we observe that the author digresses from time to time, from the report of a particular case, to generalize and to advance propo-

sitions with regard to groups of similar cases, both with reference to the pathology and the treatment of the disease. Thus the book combines, in some measure, the advantage of a clinical report and of a formal general treatise.

Of the merits of this first English translation of the volume, as now presented to us, we can speak in terms of commendation. The typographical portion of the task undertaken by the publisher is excellently well accomplished; the plates have been copied, particularly as regards the drawing, in a manner which is well calculated to make us feel gratified and hopeful as to the progress of the art in our country; in the matter of *colouring*, however, they are much inferior to the original—a point to which our artists will do well to devote particular attention.

The editor has not strictly observed the order of succession of the subjects treated of, as it occurs in the original; and we think that his arrangement is a better one, inasmuch as he has brought together the allied cases of the disease, instead of interspersing these promiscuously with others which they resemble only in having had a similar origin, and scattering all confusedly through the book. And he has, moreover, done a kindness to those who may refer to the volume for the practical information with which it is replete, by collating the many medicinal formula which M. Ricord has recommended, and grouping them all together.

Few persons, even of those who read French with much facility for their own amusement or instruction, are aware of the difficulty of making a correct, and, at the same time, an elegant translation for the perusal of others. But Dr. Betton has accomplished this task very happily. We have looked over his rendering of the original with considerable care, and only one passage has struck our eye as being decidedly faulty: this occurs at page 119, as follows: "Had I remained satisfied with these data, I might have believed in this case, as some do, in primary constitutional syphilis, or, with those who do not regard forms with regard to the limits of the infection, in a tardy hereditary affection." Even in this sentence, the author's meaning is appreciable, although we think it might have been transferred into more elegant English.

Dr. Betton has also made valuable additions to the work. He has prefixed to the translation a full *bibliography*, commencing with the year 1495, for which he certainly deserves the acknowledgments of all students in this particular department of surgery; and he has likewise drawn up an exceedingly interesting "History of Syphilis," from the earliest times. In this essay, the author displays the evidence of extensive reading, and great familiarity with the subject of which he writes, and he conveys to his reader the results of his investigations in a most pleasing manner. He cites abundant authority to show that syphilis was known and feared long before the date of its very commonly supposed origin—A. D. 1493–94. Indeed, if there were no direct mention of this disease by earlier writers, strong probability of its existence would be derived from the horrible degree and extent of licentiousness with which the earth has been cursed from time almost immemorial. It was surely not the immediate intention of this essay to "point a moral," yet we do not remember ever to have read a book which so strongly convinced us of the *innate bestiality* of human nature. All other vices and enormities might well be dispensed with, and lust alone, with the crimes and miseries which it engenders, would be adequate to convert any paradise into a hell. If Christianity — not the Christianity of name and profession alone—had conferred no other boon upon mankind than the introduction and inculcation of purity of social life, how vast the benefit, how immeasurable the blessing! and how necessary the operation of such an influence!

> "The soul grows clotted by contagion,
> Imbodies and imbrutes, till she quite lose
> The divine property of her first being."

There is one opinion advanced, or, at least, acquiesced in, in this preparatory essay, with which we cannot coincide, viz.: that prostitution, as an institution or a custom, must be submitted to, and winked at, if not actually established, under certain police regulations, "as a safeguard to the virtue of honest women." We cannot admit such a necessity; as well contend that street beggars should

be permitted and encouraged in their vagrancy, as a safeguard to the public and private purse. But the fact is that the greater the countenance which is extended to this class of parasites, the more they multiply, and the more common become burglaries and highway-robberies, thefts, and petty larcenies; because idleness, and its inevitable accompaniment and consequence, vice, are fostered; and after a time, even the street-walker, now so humble in his petition and demeanor, will, perhaps, exhibit himself in the more menacing attitude in which the "*poor lame soldier*" revealed himself to Gil Blas on his memorable journey to Penaflor. Every penny given to a common beggar only tends to confirm him in his poverty and dependency; official protection makes the matter worse, so that the self-respect which has long recoiled from asking the first alms at length bows its head in presence of the trappings which the State hangs upon the breast of mendicancy. And so will it be with every species of vice.

We believe that, in every community in which just laws are duly enforced, "the virtue of an honest woman" will be her best and her sufficient protection, (excepting, perhaps, against those whom insanity has deprived of a proper self-control, and for the safe confinement of such the State is certainly answerable):

"A thousand liveried angels lackey her,"

to quote the beautiful and eloquent sentiment of the elder brother in the "Comus."

We believe that the lascivious desire is excited and perpetuated, in constantly increasing strength, by the physical indulgence, and by the fostering of impure emotions; and that, so long as the gratification is attained or attainable, the disposition remaining the same, so long will sensuality in thought and acts live and flourish. But we do believe that the desire may be overcome, and that, excepting in the instances of disease just alluded to, and for which confinement should be enforced, it will be overcome by a continued exercise of *rationality* on the part of the individual, i. e. *the human being* must steadily and nobly combat the disposition which inclines him or her to become *a brute*. The conflict may be long and arduous; the low desire and the proneness to yield to its promptings may for a time linger around their wonted home, like the spectre-lights which haunt old graveyards; but these will disappear as the moral atmosphere becomes freshened and purified.

Some, though but a few, of the plates, and the pages of letter-press accompanying them in the original work, have been omitted from this edition of M. Ricord's work; we regret this, both because of their intrinsic value, and because we think it is due to its distinguished author that the volume should be reproduced here in as nearly as possible the same degree of completeness with which he gave it to the world.

As it is, however, the present edition of so valuable a work is an important addition to our standard surgical library, and it will, we doubt not, be so regarded by the profession. It is published, too, at a price which makes it very much more accessible to all than the original can be. F. W. S.

ART. XVIII.—*On Anæsthesia and Anæsthetic Substances generally; being an Experimental Inquiry into their Nature, Properties, and Action; their Comparative Value and Danger; and the best Means of counteracting the Effect of an Overdose.* By THOMAS NUNNELY, ESQ., F. R. C. S. E., &c. &c.

THIS highly interesting and able communication is published in the sixteenth volume of the Transactions of the Provincial Medical and Surgical Association; of the second part of which volume it occupies two hundred and fifteen pages. It is the only extended experimental inquiry into the nature, properties, and action of the various anæsthetic agents, their comparative value and danger,

and the most reliable antidotes or remedial means to be resorted to when an overdose has been taken, with which we are acquainted.

Convinced of the vast importance of the question in reference to the practical application of these agents, and of the impossibility, from the deficiency and vagueness of the information in possession of the profession, of arriving at any accurate and certain conclusion as to their true value, and the circumstances in and under which they, or any of them, should be employed or not, Mr. Nunneley undertook a series of experiments to assist in affording that information, and to furnish evidence from which such inferences and deductions may be fairly drawn as shall, if possible, render their practical application as safe and certain as the nature of the case admits.

"For this purpose," Mr. N. remarks, "we require facts to guide us. The inquiry is therefore strictly experimental, and has been undertaken for the purpose of ascertaining:—

"1. If the property of inducing anæsthesia be confined to the few substances which have hitherto been used, or if there be not a large class of bodies which have in common the property of temporarily suspending consciousness or sensibility, or both, vitality remaining; and if this be so, whether these substances are characterized by any similar composition, or chemical alliance, and have a common *modus operandi* upon animal bodies?

"2. What their *modus operandi* is? or, in other words, upon what structures do they act? what changes do they produce? what are their physiological effects? is their primary effect local or general?

"3. Is there any one of these substances which should be selected in preference to, or to the exclusion of, all the others? Is there any one the temporary effects of which are more complete and certain, the permanent more harmless, and its administration more under our control than those of any of the others, that we should uniformly retain the employment of it, and reject the use of them?

"4. Is there any essential difference in the action of these substances according to the mode in which they are administered? Do they produce the same effects in whatever way they are carried into the body, or does the effect depend upon the nature of the tissue upon which they are applied? and does the same dose, when applied to the same tissue, and in the same manner, invariably produce the same uniform results?

"5. Are there any symptoms by which we may accurately judge of their effects, and ascertain and control the point to which the system may with safety be brought under their influence?

"6. In case of an overdose, are there any means which can be employed to counteract the effects? Do we possess any antidotes, or are there any remedies? If so, what are they, in what manner do they act, and how should they be employed?"

Although Mr. N. admits that the answers he has given to these six propositions, which embrace a very wide field of inquiry, or perhaps to any one of them, may not be complete and satisfactory, still the series of experiments upon which these answers are based are in the highest degree satisfactory. If they do not settle conclusively all that it would be desirable to know in relation to the qualities and action of each anæsthetic agent, its relative value either absolutely, or under particular circumstances, having reference to the age, temperament, condition of health of the individual, and the nature of the cases in which the production of anæsthesia is desirable; they nevertheless throw much light upon each of these circumstances, while they are calculated to render the employment of this or that anæsthetic agent less a mere matter of empiricism than it has been hitherto.

The substances experimented upon by Mr. N. and of which the effects are detailed in the communication before us, are, chloroform, alcohol, spiritus vini of the Pharmacopœia, sulphuric ether, spiritus etheris nitrici, Ph. L., nitric ether, acetic ether, chloric ether, chloroform and spirit of wine mixed, hydrochloric ether, hydriodic ether, hydrobromic ether, Dutch oil or chloride of olefiant gas, oleum æthereum, Ph. L., heavy oil of wine, aldehyde, two or more of these mixed together, iodoform, olefiant gas, light carburetted hydrogen, coal

gas, benzole, camphor, naphtha (three varieties), oil of turpentine, creasote, protoxide of nitrogen, hydrocyanic acid, coneine, hydrogen, carbonic acid, carbonic oxide, bisulphuret of carbon, sulphuretted hydrogen, bromoform.

The mode of administration was by—1. Inhalation, in various degrees of concentration, for a limited period. 2. Inhalation for a prolonged period. 3. Internal administration by the stomach and rectum. 4. Injection into the veins. 5. Limited application to the skin—local action. 6. A trial of various remedies and presumed antidotes.

The *post-mortem* appearances are given in each experiment when death was occasioned.

The animals submitted to experiment were chiefly taken from the four classes of the vertebrata; some also of the invertebrata were used, though dogs and cats were principally employed; yet Mr. N. thinks that the variety has been sufficient to show that, without exposing himself to the charge of unwarrantably generalizing, he may affirm the effect throughout the animal kingdom to be uniformly of the same kind, and therefore that he is fully justified in considering it would (as indeed with many of the agents we know is the case) be the same in man; and consequently, in applying the practical inferences to the human subject, we are not very liable to go wrong.

Mr. Nunnely details, first, the whole of the experiments, 363 in number, undertaken to solve the questions proposed in the six propositions already stated; next follow such remarks as the effects of each substance individually appear to call for; after which are presented the general inferences and conclusions which he supposes to be fairly and legitimately deduced from the experiments, in the form of answers to the queries propounded in the outset.

Interesting as are the results of all the experiments performed by Mr. N., and valuable as are the remarks made by him in reference to the anæsthetic effects and comparative value of each of the articles experimented on by him, we must pass them by and confine our present notice to the general conclusions drawn by the experimenter, and offered in reply to his leading queries. It is of course evident that the details of the experiments admit of no analysis; as their value to those who would desire to test by these the accuracy of Mr. N.'s deductions depends upon the minuteness with which all the details are given; and, in reference to his remarks upon the individual articles to which each series of experiments refers, we should scarcely be doing justice to Mr. N. or to our readers by attempting to give a digest or abridgment of them.

In reply to the first query, Mr. N. remarks:—

"The experiments related in the foregoing pages prove, most unequivocally, that the power of temporarily suspending consciousness and sensation, more or less completely, is not confined to the few substances which have hitherto almost exclusively been used for the purpose, but that many other substances possess the property in common with sulphuric ether and chloroform. Many in a less degree, some in an equal, a few in a greater, and, probably, there may be other substances in the various compounds of the ether and allied groups, which chemistry is almost daily adding to the list, that may be discovered to possess the power in a still greater degree."

"If those bodies are excluded from our consideration which do not appear, though they may induce insensibility, to produce that condition of the system which is understood by the term anæsthesia, as the protoxide of nitrogen, and sulphuretted hydrogen, the other substances experimented upon may be arranged into three classes, according to the number of elements which enter into their composition:—

"1. The quaternary, into which, besides carbon, hydrogen, and oxygen, one other element enters, as nitric ether; these are very few in number, and not remarkable for anæsthetic power.

"2. The ternary compounds, which are far more numerous and powerful. They all agree in having carbon and hydrogen entering into their composition, while the third element is very varied. In the oleum æthereum, in aldehyde, in sulphuric and acetic ethers, it is oxygen; in chloric and hydrochloric ethers, in chloroform and chloride of olefiant gas, it is chlorine; in hydriodic ether (iodide of ethyle), it is iodine; in hydrobromic ether (bromide of ethyle),

bromoform, and in bromide of olefiant gas, it is bromine: while in hydrocyanic acid, the third element is nitrogen. Moreover, of this third element, even when the same, the relative proportions may vary considerably, the anæsthetic power of the substance remaining very great: for instance, in the atom of chloroform there are three of chlorine, whereas, in the atom of chloride of olefiant gas, there are only two atoms, while the proportions of carbon and hydrogen are much greater in the latter substance than in chloroform.

"It is worthy of remark, that in all these bodies, with one exception, the carbon and hydrogen may be considered as forming a radical base, which unites with the oxygen, chlorine, iodine, and bromine, to constitute a neutral body, or, as we shall presently mention, to act as a base for another combination. In hydrocyanic acid, the base would appear to be formed of carbon and nitrogen, the hydrogen in this playing the part of an acidifier; the resulting compound being the feeblest and most unstable of all acids. This slight acidity can, however, be scarcely considered as a distinguishing character; for we find that conia and other similar vegetable proximate principles, where the same three elements constitute the substance, have a feeble alkaline action, the different character of these bodies depending, probably, rather upon the amount of nitrogen than of hydrogen.

"3. In the third group the substances are all bi-elementary; they are, with three exceptions, hydrocarbons; the exceptions being carbonic oxide, bisulphuret of carbon, and chloride of carbon. The most simple, obvious, and striking physical properties which the whole of these substances possess in combination is that of being gaseous, or of being so volatile that at the ordinary temperature they are readily converted into vapour.

"Although in the first group, that of quaternary compounds, the number of substances is limited, there are several of those which, on ultimate analysis, are found to consist of only three elements, which most probably, in mode of combination, have a strong analogy, if not identity with this group. For instance, acetic ether, although only containing hydrogen, carbon, and oxygen, has probably these elements arranged, in the first instance, so as to constitute oxide of ethyle and acetic acid, which as such, then enter into combination with each other to form acetic ether, as the nitric acid and oxide of ethyle do; this also may, perhaps, be the case with hydrochloric ether."

"If we analyze the composition, and compare the effects of each of the substances in the second group, we find that we may in succession exclude the third element of which each consists, and yet have an effective anæsthetic; thus, in sulphuric ether, we have oxygen, but no chlorine or nitrogen; in chloroform, chloride of carbon and chloride of olefiant gas, no oxygen or nitrogen, but chlorine instead; in hydriodic ether, iodine; in bromoform and bromide of olefiant gas, bromine is substituted; while in hydrocyanic acid, we have neither oxygen nor chlorine, but nitrogen. So that by this process alone, we should come to the conclusion that, however advantageous one or other of these third substances may be in modifying the action of the other two elements, the hydrogen and carbon of which the agent consists, they cannot be regarded as at all essential to the constitution of an anæsthetic body. This conclusion is rendered perfectly certain, when the constitution and action of the third group of substances are considered. Here most of the substances only consist of hydrogen and carbon, and yet among them are found agents which are possessed of considerable anæsthetic power, as, for instance, benzole, common coal gas, and olefiant gas."

"Hydrogen, if given alone, does not possess any anæsthetic property whatever, and if given in combination with any other body than carbon, it certainly does not act as an anæsthetic. With oxygen it is perfectly inactive; with most other elements it becomes a deadly poison. On the other hand, if other combinations of carbon are employed, as the bisulphuret of carbon, carbonic oxide, and chloride of carbon, it is found that these substances do act as anæsthetics; some of them not so safely, pleasantly, or so manageably, it is true, being altered and modified by the other substance with which the carbon is combined; but, nevertheless, still acting as anæsthetics. Hence, I think, we may legitimately arrive at the conclusion that to constitute an anæsthetic agent, carbon

must be present, and that by the combination of it with hydrogen, or perhaps chlorine, we have the basis of the most effective anæsthetic agents. Whether the hydrogen itself plays any important part or not, it is difficult to say with certainty; probably it does, for though, *per se*, it appears to be absolutely negative, yet, as in combination with sulphur it materially modifies the action of this, so we may also suppose it to modify the action of carbon when in combination with it, and thus that it plays an important part."

The general recapitulation of Mr. N. is as follows:—

"1. That no anæsthetic agent has yet been discovered which does not contain carbon.

"2. That the combination of carbon with hydrogen or chlorine constitutes the best binary agent, and that the greater the proportion of the carbon to the hydrogen, being at least equal to it, the more powerful the agent is; and if we could obtain a pure liquid of hydrocarbon, containing these equal proportions, easy to be volatilized, and of constant composition, it is highly probable that it would constitute a valuable and safe anæsthetic; for, if the carbon be too much in excess, as in benzole, where the proportions are as two of carbon to one of hydrogen, although the compound is a powerful and safe anæsthetic, yet it is neither so manageable nor pleasant as where the proportion of carbon is not so great, symptoms being developed which may reasonably be supposed to arise from the excess of carbon.

"3. That hydrogen and carbon may unite as a radical base with oxygen, chlorine, iodine, bromine, nitrogen, and perhaps some other substances, to constitute anæsthetic agents; and that these compounds, or at least some of them, may again unite with acids, consisting perhaps of the same elements as the base itself, and yet retain, to a certain extent, the same property as the oxide of ethyle; as nitric, chloric, acetic, and hydrochloric ethers do.

"4. That of these ternary compounds, those act the best, all things taken into consideration, in which the third element bears the least proportion to the hydrocarbon, especially the carbon; as, for instance, ether and alcohol, perchloride of formyle (chloroform), and hydrochlorate of the chloride of acetyle (Dutch liquid), and of the binary compounds, those in which the atoms are in equal proportion to each other.

"5. That substances which are analogous in composition and isomorphous in form, as in physical and chemical character, so are they often similar in physiological action; but where they are not isomorphous, their action is not similar, as chloroform and iodoform.

"6. That substances which are isomeric, or nearly so, but very dissimilar in physical and chemical properties, are also so in physiological; as witness several of the pure hydrocarbons, which, though very similar in composition, are very different in properties.

"7. That, should any other combination of elements be discovered which shall possess more valuable and important anæsthetic power than those yet known, its composition will probably be found in accordance with the principles now announced.

"Lastly. We may conclude that the action upon the animal economy of all true anæsthetic agents, whether carbons or hydrocarbons, whether simple or compound, is essentially the same in character."

In reply to the second query, Mr. N. presents the following as the answers resulting from his experiments.

"1. That the action of anæsthetic agents is immediately and primarily upon the nerves. That the heart, respiration, circulation, the blood, and the muscles are secondarily affected.

"2. That in the first instance all these substances act as stimulants, this action being more or less prolonged, but to some extent perceptible in all. In the more powerful anæsthetics, as hydrocyanic acid, chloroform, and the chloride of olefiant gas, the stage of stimulation is short and comparatively feeble (unless with the two latter the dose be very small, when it is evident enough), the sedative effect being quickly superinduced. With most of the others, it is more prolonged; with ether it is considerable, with aldehyde it is still more so; with the bisulphuret of carbon, turpentine, and naphtha, even

when inhaled, it is very great, and when applied locally, intense inflammation only is induced, anæsthesia scarcely being occasioned; while with alcohol, even when taken internally, unless the quantity be enormous, only the stimulant effect is produced at all.

"3. That the action is at first local. When these agents, in substance or in vapour, are applied to a limited portion of the body only, that portion is rendered anæsthetic; but that, if the application be more prolonged, or extended over a larger surface, then the effects become general. Thus we may paralyze a part or the whole of a single leg in the frog and toad; by continuing the application, the corresponding limb becomes involved, and a still farther continuation will affect the entire body of the creature, consciousness, sensation, and motion being all lost. In a large insect, or a reptile, we may stupefy the anterior or posterior half of the body with the attached limbs, the other part remaining unaffected. Even with the higher animals, the experiments demonstrate that, in the cat and rabbit, a part of a leg may be locally so affected as to be altogether insensible to the amputation of it, the general system not differing from its normal condition. In a man, a small portion of the surface or an entire finger may be made insensible, the feeling of numbness extending along the nervous trunks far beyond the part to which the application is made. Hence we may fairly conclude that the law universally holds good.

"4. That although the action of anæsthetic substances is upon the nerves, and principally upon those in connection with the cerebro-spinal axis, it is not primarily and directly upon the cerebral masses and sensorium, but upon the peripheral expansions of the nerves; that, *cæteris paribus*, the larger the number of these which can be directly and simultaneously acted upon, the greater will be the effect. Hence the *rationale* of the action of these substances when inhaled. When taken in substance into the stomach, they can only come in contact with a comparatively small number of terminal nervous papillæ, whereby is occasioned their stimulant, rather than their anæsthetic effect; but when inhaled, they come in contact with the whole expanded respiratory surface and the nerves there exposed. Of course, the more concentrated the vapour, the more intense and sudden will be the anæsthetic effects."

In answer to the third question, Mr. N. thus sums up his general conclusions from the experiments detailed.

"The substances which appear to possess the greatest power, and the effects of which are the least objectionable, are the oxide of ethyle (sulphuric ether), the gaseous carburetted hydrogen (of which common coal gas is perhaps the best), chloric ether, hydrobromic ether, chloroform, the chloride of olefiant gas, and the chloride of carbon.

"*Ether*, which, from being the first substance of this kind introduced was for some time almost exclusively used, has now almost ceased to be employed. In power, it certainly is much inferior to several of the other bodies; its action is not uniform and certain: more excitement is frequently manifested in its use; it produces much more irritation while being inhaled, and afterwards headache and feverishness are more liable to follow. These are objections so weighty, although in some degree counterbalanced by its general safety and the less liability to collapse supervening, that, unless under the circumstances pointed out in the remarks upon this fluid (that is, where there is reason to suspect any peculiar susceptibility to the action of the depressing influence of anæsthetics—such as disease of the heart of an asthenic character, or considerable constitutional debility), and other anæsthetics are not at hand, it will hereafter, I apprehend, be rarely used.

"*Common Coal Gas* is a safe and effective agent. Its cheapness is also an important recommendation. On the other hand, the disagreeableness of its odour as compared with the pleasantness of the chlorides, and its gaseous form, especially the latter, are serious impediments to its general employment. Under any circumstances, the inhalation of a gas is not of so easy and convenient accomplishment as that of the vapour of an easy evaporable fluid, more complicated apparatus being requisite. In places where the gas is not used for domestic purposes, the inconveniences of transporting and preserving it would be found to be objections not to be despised; but where other agents

are not at hand, or from any circumstances are not thought to be altogether applicable, no hesitation need be felt in employing this substance.

"*Chloric Ether* is a pleasant substance both in taste and smell, and in a very young and feeble person, I should feel disposed to employ it in preference to chloroform; but in ordinary cases, all other things being equal, inasmuch as a larger quantity of it is necessary than of either of the following, I should not think its use would be urged.

"*Hydrobromic Ether* is a safe, pleasant, and effectual anæsthetic, but inasmuch as it does not possess any such qualities as to render its employment more advantageous than some other substances, the very great cost of it will, unless this can be materially reduced, entirely prevent its general use. One manufacturer would not prepare it for me under one guinea an ounce.

"*Chloroform* is undoubtedly one of the pleasantest and most powerful anæsthetic substances known; indeed, until I showed the safety of the chloride of olefiant gas, by far the most so. That it is the safest can by no means be maintained with equal certainty; on the contrary, in safety I believe it to be inferior to all the other substances mentioned just below." Some of the indications for and against its use are the opposite condition of things under which the sulphuric has been recommended. "There is one unpleasant effect which sometimes follows the administration of chloroform that I have not seen noticed, but of which I have found more than one person complain, namely, that for long (even months) after its inhalation, they have occasionally experienced the same sensations as they did at the moment of breathing it."

"*Chloride of Olefiant Gas.* This fluid I have now administered so frequently in practice, that I think I am justified in stating the inferences drawn from the experiments upon animals are correct. It appears to be unattended with the troublesome excitement produced by ether on the one hand, and on the other with less of the tendency to collapse, which is so objectionable in chloroform; hence, if that only true test, experience in general use, should confirm this opinion, it will form a not unimportant addition to the list of anæsthetic agents. In the report upon the action of Dutch liquid, which I made in the *Journal* of the Association, I was misled as to the relative cost of it and chloroform. I have recently had reason to think that, owing to a want of care, ignorance, or some other cause, an improper method of manufacturing the fluid was employed, and that it contained spirit of wine, hence the lower cost of its production. I would, however, here state, that it appears not improbable a combination of the chloride of olefiant gas with spirit, not a mere admixture of the two fluids, but a combination during manufacture, may probably prove, not only a sufficiently cheap, but a valuable anæsthetic."

Chloride of Carbon. Mr. N. is doubtful of the result of his experiments upon this substance, having reason to suppose that the substance employed by him was a chloride of a hydrocarbon, dissolved in spirit; should, however, experiments with a pure chloride of carbon confirm the supposition of its anæsthetic powers, and it be pleasant and safe in use, it will be generally employed, as it can be prepared on a large scale at a very small cost.

To question four, Mr. N. sums up his answer by referring to what has already been said in reference to the effects of each article, and the general statement that the same dose of an anæsthetic (with one exception—hydrocyanic acid), when taken into the stomach, does not produce the same effect as when inhaled. Mr. N. believes this difference to depend solely upon the greater extent of surface with which these agents are brought into contact when inhaled, and their being in a state of vapour. In regard to the uniformity of result from similar doses and modes of administration, Mr. N. remarks, that there is considerable variation in different individuals as to their susceptibility to the influence of these agents—one individual being far more easily affected than another. The very young animal will bear, not only a proportionably, but positively a larger quantity than the adult; while an older, but not an adult animal, will not bear the quantity which an old one of the same species will. Moreover, at different times, the same animal is far more susceptible to the influence of them than at another. Hysterical females, and lively excitable animals are much more susceptible to the action of these agents than the unexcitable and phlegmatic.

The quantity of any anæsthetic which is inhaled in a given time is of the utmost importance; *cæteris paribus*, the more concentrated the vapour, by far the greater is the danger. Given slowly, the same animal will inhale at least twice the quantity without dangerous symptoms, that, if inhaled very rapidly, would be not unlikely to cause death.

In reply to question five, Mr. N. remarks:—

"Though, without doubt, in every single case, we cannot control the effect, yet, as a general rule, it may be affirmed that we can both judge of the effects and control the point at which we wish to arrest the influence of these agents, provided due care be used in administering them."

"To insure safety, the two principal points to be attended to in the administration of an anæsthetic are the quantity used alone, and the temperature at which it is given; of course, the higher the temperature the greater the quantity of vapour generated in a given time. It is of the utmost importance to take care that the vapour is not so concentrated as to produce a very sudden impression, or the nervous energy may be so suddenly and completely suspended that the heart at once ceases to act."

Mr. N. thinks it a very common error, that of carrying the anæsthesia too far. In order that no sensation of pain should be produced, it is not necessary to render the patient so utterly powerless as to be altogether unable to stir. This, he adds, is a point of especial importance in the practice of midwifery.

"If it be determined to use an anæsthetic agent, in a case of parturition, that one should be selected which gives rise to the least depression, either temporary or permanent, and that in all cases especial care should be taken to give as little as possible. It is rarely, indeed, necessary to produce unconsciousness, which is rather prejudicial than not, by suspending the pains and retarding labour; a dreamy condition of half conscious obliviousness is, unless there be some considerable manual interference required, all that it is either necessary or desirable to produce. The plunging the woman into a profound state of unconsciousness has, I am convinced, often been productive of the worst and most fatal consequences."

Nothing, according to Mr. N., taking all things into consideration, answers so well for the administration of the anæsthetic agents as a large, moderately fine linen handkerchief, folded first into quarter size, and then into a funnel shape. While it retains quite sufficient of the fluid, it does not obstruct the free ingress and egress of air, consequently the process of respiration is but little disturbed.

"The first indication of an animal being pretty well under the influence of the agent is the deeper, fuller, and more prolonged respiration; he inhales as though it were pleasant to do so. This is not always observed, though it very frequently is. At first there is some little excitement, and a disposition to move, the pulse is rather fuller and quicker, the pupils somewhat contracted, and the eyes wandering; there is often incoherent talking; these symptoms speedily pass off, and loss of volition, and indisposition, or inability to move comes on; the eyes become upturned, the pupils dilated, the pulse smaller, the muscles flaccid, and unconsciousness and insensibility ensue. If the quantity of vapour be now lessened, the respiration becomes more free and natural; if not, it will be laborious, and presently almost or entirely cease. The lips become closed, and in expiration, the cheeks may be distended by the air, which in escaping may produce a blowing noise. This I regard as a certain sign that the system is so fully under the influence of the anæsthetic as to border upon danger. At this point, or before (for the last symptom is by no means invariably present, the mouth being often open instead of closed), the pupils are widely dilated, the limbs become as flaccid as possible; there is no reflex action, the urine or feces, or both, may involuntarily escape, the conjunctivæ and the lining membrane of the mouth—often indeed the whole countenance, become pale and bloodless; the heart may be perceived acting most rapidly, with a short, feeble throb, the pulsation in the arteries being scarcely, if at all perceptible, and the respiration becomes either very quick and inefficient, or slow and gasping. If this entirely stops for any length of time, even though the heart may be felt still to move, recovery will be doubtful. In operating, if the surgeon should find

the flow of blood to cease, he ought *immediately* to be on his guard, as this may indicate such a condition of anæsthesia as to seriously compromise the heart's action; and if the inhalation be carried farther, might be fatal."

According to Mr. N., we may easily prevent the vapour from being inhaled at first in too concentrated a condition, by not putting the handkerchief in the first instance too closely over the face; or, if an apparatus is used, by opening the air valve. If there be no excitement, we are not to increase the strength of the vapour; but if there be excitement, then by applying the handkerchief more closely, or by shutting the valve, to terminate this by more fully and quickly bringing the system under the full influence of the agent, but taking care that, so soon as there are indications of unconsciousness and insensibility being produced, in a great degree to withdraw the anæsthetic, and only to give such a diluted vapour as shall just suffice to keep up the condition of insensibility, which, when once produced, may be usually maintained by a very moderate quantity of vapour; for it must be borne in mind that the *full effect* is not always *instantly* produced as the vapour enters the lungs, nor do the effects always immediately pass off; indeed, the rapidity with which the effects disappear does not always correspond with their intensity.

"If," remarks Mr. N., "these directions be attended to, rarely will death be occasioned by either ether, chloride of olefiant gas, or chloroform, although, as I have before stated, chloroform I consider to be the most dangerous of all; yet even of this, when due care is exercised, experience has shown the danger not to be very great."

Mr. N. adds that it is of considerable importance the stomach should not be distended with food; if it be, vomiting is much more likely to be caused, and he thinks a fatal result more likely to be induced in such a condition. In several of the animals in which a small dose destroyed life, the stomach was found distended with food recently taken.

In reply to the fifth query, Mr. N. observes that he considers safety in the administration of anæsthetics is rather to be found in guarding against the exhibition of an overdose than in seeking for an antidote or remedy against the effects of it.

"If an antidote of much value exists, it has yet not been discovered; of the remedies proposed, no one appears to possess any great power in such a condition of things as would call for its employment. It is true, *agitation, cold affusion, a cold stream of air*, perhaps *electricity or galvanism*, and *some other stimulants*, will expedite the process of rallying where the depression is not very profound; so, also, it is possible that *venesection*, by lessening the pressure of the column of blood upon the walls of the heart, especially the right, may, when this organ is still acting, facilitate its contraction, and thus assist in restoring the circulation; at the same time, it is by no means certain that, with such a depression as exists in the nervous energy, the abstraction of blood may not in itself tend to increase, or, at any rate, to prolong this condition, precisely as it would do in syncope, to which state it appears not improbable that induced by anæsthetics bears some considerable analogy; and this analogy would seem to point out the horizontal as the proper position for a person in such a state to be placed."

"In the great majority of cases, so long as the heart acts, and respiration at all goes on, the mere withdrawal of the anæsthetic is followed by the restoration of the functions, and therefore the question forces itself upon us as to the positive value or not of *any* of these means. If the heart has ceased to act, no blood will flow on a vein being opened. If respiration has ceased, and the heart does not move, *galvanism*, though it may make the voluntary muscles violently contract, only does this by the sooner exhausting their power to do so, without in any way restoring the vital functions. *Oxygen*, of course, if there be no respiration, cannot be taken into the lungs, and the performance of artificial respiration with it would be both difficult and incomplete, even were it at hand, which it would not in the great majority of cases be, while, so far as experiment and chemical action goes, it does not appear that, if it were ever so fully inhaled, even in combination with the anæsthetic substance, it would in any manner prevent the development of full anæsthesia, and therefore it cannot be for

a moment imagined it would in any way counteract the effects when they are developed. *Ammonia* we have seen to be useless and inert, whether given mixed with the substance, or after its effects were produced. The coldness and depression which in so marked a degree are present do not encourage us in the supposition that either *cold water* or *cold air* to any very great extent would be useful—a conclusion which the experience of their effects confirms. We are therefore reduced to seek just that assistance from their use as shall suffice to produce such a moderate shock, if the nervous system be capable of receiving any, as may cause a reaction and rousing of its powers, by which the heart and respiration may again be set in motion, or rendered more vigorous. This appears far more likely to be accomplished by the sudden dashing of a small quantity of cold water upon the face and chest, possibly alternating with heat to the latter, or such a moderate stream of air as may be produced by a fan, and not too violent agitation of the body, than by excessive violence, or by entire and long-continued immersion. A moderate interrupted compression of the chest, and pressure upwards of the abdominal viscera, should not be neglected, as tending to change the air in the lungs, and thus to get rid of the vapour there remaining; or, with the same intention, a stream of air might be, not too forcibly, blown through a small tube into the larynx for a minute or two."

Our readers, we are convinced, will not be displeased at the length of our analysis of Mr. N.'s most interesting communication. Anæsthetic agents are now extensively employed in every case where the occurrence of severe pain is anticipated. And the manner in which their bold and fearless administration is spoken of by some is certainly calculated to lead the inexperienced and incautious into the belief that the production of anæsthesia is attended with little or no danger, whatever may be the circumstances under which it is induced, the agent that is employed, or the quantity that is given. Beneficial as the results to be derived from the induction of anæsthesia in many cases unquestionably are—nevertheless, to derive from it all the good it is calculated to afford, with the least possible risk of danger to the patient, the proper practical application of all the anæsthetic substances becomes a most important question, and one that deserves to be well and thoroughly investigated. For having commenced in the proper manner this investigation, our thanks are due to Mr. Nunnely. The general conclusions he has deduced from his experiments are of no trifling importance, and with them every physician should be made acquainted. This, so far as our circulation extends, we have now endeavoured to do; and though our extracts from the communication of Mr. N. have been somewhat long and frequent, we cannot close this notice without still further extending it by quoting his very forcible language in reference to *chloroform*.

"It is," he remarks, "of all the anæsthetics with which I am acquainted (with one exception), one of the most, if not the most agreeable, and at the same time it is possessed of very considerable power. It is for the most part pretty constant in its action; but I am also bound to add, it is one which requires more care in its administration than most of the others, and I would venture to say much more than has always in practice been exhibited. It is true that many fatal cases in which it has been given are known, but, I am firmly convinced, there are many more fatal cases which have not been reported. Even in those cases which have come to light, all sorts of explanations, and attempts to explain away the true cause of death, have often been attempted, rather than admit the fact of the person having been killed by the chloroform. This is, perhaps, scarcely to be wondered at, as the admission of the fact would be almost like acknowledging being accessory to the death of the patient, which most men naturally shrink from. A careful examination, however, of the preceding experiments cannot, I think, but convince any impartial person that, in reality, death in those cases was caused by the chloroform; either from some abnormal condition or peculiar idiosyncrasy, by which the person was rendered unusually susceptible to its influence; or, as I believe, far more frequently from a want of that experience and care in its administration which the exhibitor should have possessed and attended to. When I see statements by medical men that they have 'boldly administered' chloroform in quantities of from six drachms to an ounce and a half at a time without any ill effects, I cannot but

congratulate both the patient and the doctor that the rashness in employing such quantities has been equalled by the carelessness in administering it, so that by far the greater portion of the fluid has been wasted by escaping into the air of the room, rather than passed into the lungs of the inhaler, and thus the carelessness of the administrator has, contrary to what generally occurs, and which he would do well not to risk again, been the means of escaping from the effects of his rashness." D. F. C.

ART. XIX.—*Sleep Psychologically considered with reference to Sensation and Memory.* By BLANCHARD FOSGATE, M. D., Physician to the New York State Prison at Auburn. New York, George P. Putnam, 1850: 12mo. pp. 188.

DR. FOSGATE, in the present essay, has given a very interesting, and in general correct, account of the phenomena of sleep. In his explanation of dreaming, he has, however, advanced a position which he will find it very difficult, if not impossible, to prove. We allude to his postulate that "the mind is *absolutely* sleepless." That during sleep the mental organ is still active—consequently, that we always, strictly speaking, dream—but, when the mental excitement is not so far "exalted as to arouse any of the senses," we do not, upon awaking, retain any recollection of the circumstance; for, according to Dr. F., "we are dependent on external sensation for a remembrance of what passes in the mind in somnolency." Perfect sleep, as defined by Dr. F., is the repose of all those organs of perception by which the mind is connected with the external world, in which state we retain no memory of our dreams, because "any mental operation not based in concurrent outward relation cannot be recollected."

Let us, however, do our author full justice, by presenting a few extracts from his general conclusions.

"Sleep," he remarks, "is a phenomenon of that part of our existence by which we are connected with the external world, and during sleep the mental operations proceed, though modified by its influence. During this state, the mind is restricted in its operations to the stimulus afforded by the activity of the innate powers of the cerebral organization, and as one consequence of this activity, the memory of past events is brought to view. We arrive at this conclusion from those states of mind in which we perceive that bygone circumstances are re-called and associated in the mental process. And, although, in these operations, the mind is brought to a remembrance of what has passed, the memory is not impressed with the thoughts which occupy it, while external sensations do not contribute their stimuli to its operations. To this conclusion we come, from those states of being in which we know that the mind was active while the senses were dormant, and there was no remembrance, on awaking, of what then transpired. From the fact that the mind is active without the stimulus of external sensation, but that without this stimulus there is no memory, and that the perception can be as readily stimulated by the internal as external sensations, we conclude that it is exclusively through the activity of the organs of perception that the memorial faculty is manifested, and that these organs must be approached through the special senses to develop this mental power."

Memory, says Mr. F., "is a mental element manifested through the activity of the organs of perception. It is requisite, however, that these organs receive their stimulus from certain sources, otherwise the memorial faculty will not be impressed. Where they receive their stimulus from the propensities or sentiments, the resulting mental operations are not remembered. From this circumstance, we apprehend, it is that phrenology has concluded the animal organs are not possessed of memory; but whether they are or not, they do not stamp the result of their stimulus indelibly upon the mind.

"Universal experience teaches that what we see or hear, we remember better

than what we imagine or read about; because memory is much clearer and more durable when its objects are perceived through the external senses than when it is merely a deduction of the mind, or, in other words, when it is only an intellectual impression."

It is not because in these cases the power to recall by a mental act images or ideas previously acquired—which act constitutes memory—but because the images or ideas which we receive by sight, and hearing, and feeling, are themselves more clear, definite, and durable than are the most vivid and accurate description of the objects, or scenes, or sounds, or sensations, to which these images or ideas relate. But the results of mere mental operations—the compound or modified images or reflex ideas which the mind itself creates—are as readily recalled as are the simple primary impressions received originally through the senses. Witness the mental creations of the poet, the painter, and the sculptor. Here images are recalled and modified, and combined, by a purely mental effort—and these modifications and combinations are again recalled at will by an effort as purely mental as the first.

"The perceptive faculty has three sources of stimulus: viz., through the media of internal and external sensations, and the powers of reflection. The thoughts which follow the impressions of the first, when unconnected with the second, are not remembered; and those flowing from the last, under similar circumstances, are imperfectly retained; but the perception of impressions through the organs of external sense develops the memorial faculty in its fullest power.

"Through perverted or imperfect sensations, perception is so modified that dreaming and insanity singularly harmonize. The perceptions being in consonance with the state of the impressions transmitted, the perception of actual existences is imperfect, and memory fails to recall and associate the past with the present in accordance with reality:—hence some of the incongruous results of the mental operation during these states.

"In old age, the organs of sense lose their nice property of receiving impressions perfectly; consequently, the perceptions are indistinct and the memory of recent occurrences is defective; but the remembrance of circumstances which occurred in times long past, when the senses were intact, is comparatively fresh in the mind. The mental operations that depended upon the internal impressions of those times are forgotten, and only those in which the external senses largely contributed are retained. If memory, as advocated by Dr. Combe, be a mode of activity of the knowing or perceptive organs, and if this activity can be stimulated by the will, then we may possibly account for this peculiar feature of advanced age. Early impressions having been made upon organs in good condition to receive and transmit them accurately to the perceptive faculties, a corresponding effect was there produced. Now volition is little impaired by age, and through this power the mind can at will recall mental perceptions; but the perception of impressions made through impaired organs of communication is so feeble from the imperfection of the instruments employed, that, owing to this feeble perception, there is but little for the will to act upon, and consequently, early perceptions are readily recalled, while those of recent occurrence are indistinctly remembered."

"During sleep, memory may be inactive from absence of external stimuli, and the judgment deranged through the operation of sensations unconnected with outward relations; but the imagination is often stimulated into its wildest fancies by the former, while the restraining influence of the latter is withheld. All the mental faculties are modified in their activity by sleep, because by it a different relation is established. When the mind is sound and the body awake, impressions from without have the controlling influence; but when asleep, the intellectual operations are stimulated by internal influences, or impressions from the affections or feelings,—consequently, a different result must be expected. It appears at least probable that intellectual operations induced by internal causes, are not, under any circumstances, the objects of memory to so great a degree as those produced by external objects. Certain it is that, during that stage of sleep in which the external senses are in abeyance, we know that from internal causes, there is excessive action in the mental organ, without

leaving any impression upon the memory. For example, we refer to voluptuous orgasms in sleep, in which, should the excitement be so exalted as to arouse any of the senses, memory retains the circumstance as a dream: but when the exaltation does not reach that pitch, the mind has treasured nothing of the occurrence. Yet in such instances the evacuation is incontestable evidence that mental action did exist, and that the mind was not asleep. Vigorous activity of a propensity or sentiment will stimulate the intellectual faculties to originate mental pictures to gratify the original desire; and in these cases the mental operations are not only diversified but intense—involving the greater part of the mental powers."

We would suggest whether seminal emission during sleep is always the consequence of voluptuous dreams; and, as it certainly is not, this illustration of Dr. F. falls to the ground.

Even admitting as correct all that he contends for as to the connection between memory and external sensual perception, does it prove that the mind never sleeps—in other words, that the mental organs are incessantly in a state of activity? Can any one suppose that, during the entire absence of all consciousness which constitutes profound sleep, the mental faculties are still in exercise? It will not do to say that they appear to us to be dormant because we retain on awaking no memory of their operations; and that this want of memory is owing to the complete repose of the external senses. We will not say that the fact must be proved, for it is unsusceptible of proof either direct or analogical. We know that a state of profound sleep is a state of utter unconsciousness; that all the phenomena of existence save those which are within the domain of the nerves of organic life, and a few reflex actions, temporarily cease. Now is it to be supposed that in such a state as this the operations of mind go on, even in a modified degree or manner? We infer that the mental organs as well as the animal, demand an alternation of repose and action—that sleep is as necessary to the one as to the other, from the fatigue which invariably ensues from too prolonged mental efforts—and from the fact that constant mental activity is known to be incompatible with the health and integrity of the brain. But there are different degrees of sleep. With a perfect interruption of any conscious relation to the external things by which we are surrounded and the circumstances in which we are placed, certain of the mental faculties may be in action; by these mental images may be revived, varying according to the portion or portions of the brain which may at the time be active, sometimes producing simple and congruous images, but at others a more absurd, incongruous, and impossible succession of mental phantasmagoria than almost the wildest imagination could conjure up during a state of wakefulness. In many cases, images are awakened in the mind during sleep by external impressions upon the half dormant senses, without external consciousness being aroused; nay, even the voluntary muscles may be put in action and the sleeper made to walk and to perform many of the ordinary acts of life through the agency of mental images, while external consciousness is still dormant.

In what are properly termed dreams, the reasoning faculties are never active. We never in our dreams attempt to compare and arrange the discordant images which dance before the mental vision. The most absurd and incongruous positions in which, while dreaming, we appear to be thrown; the fantastic shapes which surround us; the rapid change of scene; the annihilation of time and space, never excite in us the least surprise. Reason never asserts her province and resolves into its true elements this "baseless fabric of a vision." We never reason in our dreams. But we experience fear, horror, disgust, pleasure, and, contrary to what should be the case if Dr. F.'s views in relation to memory were all correct, we recollect the sensations in connection with our dreams when we awake. It is true that we sometimes feel conscious of having dreamed, without being able to recall any of the imagery of our dreams; because the activity of the mind was so slight, that it did not reproduce vividly the images of which the dream was composed.

We admit that, in the absence of external consciousness, whilst the external senses are inactive, heeding not their appropriate stimuli and conveying no

impression to the brain, the whole of the intellectual powers may be in active operation—that the mind may reflect and reason. It is in such a state of mental abstraction that the philosopher weighs and compares his facts, and on them builds his theories; it is in such a state the poet creates his ideal world and peoples it with "beings which had no corporeal birth;" and it is in such a state the painter forms those images and scenes he afterwards produces on the canvas. But it would be incorrect to call such a state one of sleep in a proper physiological sense. In sleep, we never reason, and the images then formed, if we were to attempt to describe them in verse or transfer them to the canvas, we should find to be, as Dr. Parr remarks, "a thing of shreds and patchwork, composed of the heterogeneous and disjointed vestiges of ideas previously received through our senses."

We had intended to notice the illustrations of his subject which Dr. F. has drawn from the subject of mesmerism; but we must now pass over this part of the essay, with the sole remark that our belief in the reported wonders wrought by mesmeric influence falls very short of that professed by him. We cannot believe, we have certainly seen no fact calculated to prove to us, that mesmerism, or, as Dr. F. denominates it, *animal magnetism*, "holds a controlling power over both mind and body."

While we deny that the mind is active during sleep, or that memory has control only over the images derived through the external senses; still we would remark that, admitting the inaccuracy of both these propositions, they but slightly impair the correctness of the views advanced by Dr. F. in reference to the *phenomena* of dreaming, for here it is true that a portion at least of the mental functions are active, while the external senses in common with the organs of animal life are dormant. D. F. C.

Art. XX.—*Notes of a Recent Visit to several Provincial Asylums for the Insane in France.* By John Webster, M.D., F.R.S., Fellow of the Royal College of Physicians, Consulting Physician of St. George and St. James's Dispensary, &c. London, 1850: pp. 35.

This interesting pamphlet is the production of a distinguished member of the medical profession, whose writings are well known in this country, and who has devoted much attention to mental diseases, and been particularly interested in preparing the public mind for a much larger amount of clinical instructions in institutions for the insane than has been heretofore permitted in any part of Great Britain. In the prosecution of this object, he has made several visits to the French hospitals, and in the paper before us, which was originally published in the "*Journal of Psychological Medicine*," he gives a highly interesting account of his last tour, and a large amount of information, in reference to many of these institutions, not to be found elsewhere in so small a compass. The present report has reference only to eight provincial asylums, while those in Paris, which are most generally known, are referred to only cursorily.

The asylums visited will be briefly referred to. First in order is that of *Bon Sauveur at Caen*, which, besides being an asylum for lunatics of both sexes, is a religious establishment, containing a large population which is thus officially noticed. 1. The choir and lay-sisters, consisting of two hundred and thirty-seven individuals. 2. There are five priests, composed of the superior and four chaplains. 3. Twenty-six free boarders, all resident; twenty being ladies, and six gentlemen. 4. The deaf and dumb, of which there are one hundred and fifty-five, comprising sixty-five males, and ninety females. 5. The resident domestics amount to one hundred and twenty-eight, of whom sixty-eight are males, and sixty females. And lastly, six hundred and ninety-two lunatics, of whom three hundred and two are men, and three hundred and ninety women. Besides these, there are also two physicians, and eighty new resident work people; so that one thousand three hundred and twenty-five individuals actually belong to this great establishment.

St. Meens Asylum near Rennes, with a fine situation, has an old building not constructed for, or adapted to, the purpose for which it is now used. "Even the best part looks more like a prison than a lunatic institution, having strong iron bars in the windows," and in other respects not suitable for the reception of the insane. During the year 1849, ninety-one patients were admitted, thirty-seven were discharged cured, and forty-nine (twenty-one by cholera) died. When visited by Dr. Webster, there were three hundred and eleven patients in the house, of whom one hundred and forty-three were men, and one hundred and sixty-eight women.

Nantes Asylum forms one division of the "Hospice Général" of the city of Nantes, and although the arrangements of the buildings appropriated to the insane are considered admirable by Dr. Webster, one of the best indeed throughout France, he regards the situation as highly objectionable. The total population at the time of his visit comprised one thousand one hundred and ninety-six individuals, viz., 1st. One hundred and ninety insane old men, and two hundred and sixty-five women of the same description. 2d. Twenty-five deaf and dumb persons. 3d. Fourteen male and female boarders. 4th. One hundred and sixty-one orphans or foundlings. And lastly, three hundred and ninety-one lunatics; to which must be added, one hundred and fifty individuals who compose the staff of officers. During the year 1849, one hundred and twenty-six patients were admitted, fifty were discharged cured, and one hundred (sixty-one by cholera) died.

St. Gemmes Asylum, near Angers, is built upon a rock close to the Loire, above three miles from the city of Angers, and is appropriated exclusively to lunatics. When certain improvements now in progress are completed, Dr. Webster believes this "will become a first-rate institution." This asylum differs from the others noticed in having the resident physician the superintending director; and, as might be expected, the discipline pursued was much better than in the establishments having a different organization.

In the asylum were three hundred and forty insane; one hundred and sixty-one being males, and one hundred and seventy-nine females. During the year 1849, one hundred and twenty-six patients were admitted; seventy-one were discharged cured, and seventy (sixty-two by cholera) died.

The *Asylum at Le Mans*, "of all the public establishments for the insane recently visited" by Dr. Webster, "gave him the most satisfaction." This asylum contains two hundred and fifty-eight patients; one hundred and twenty-four males, and one hundred and thirty-four females. During the year 1849, seventy-four patients were admitted, thirty-five were discharged cured, and sixteen (none of cholera) died. This institution has only one physician, who resides within its precincts, and gives his time and exertions solely to the duties of his office.

Asylum at Blois. This institution is not yet completed, but will ultimately accommodate three hundred and fifty insane patients. Its general plan somewhat resembles that at Le Mans. During the year 1849, eighty-six patients were admitted; twenty-three discharged cured, and fifteen ("several" of cholera) died. The actual number in the asylum, when visited by Dr. Webster, were one hundred and twenty-four; sixty being expected to arrive in a short time, and for whom the directors were already prepared. The resident physician is also director, and labour is here used as a remedy to an extent far beyond what is common in other institutions, without any accident having ever occurred.

The *Orleans Asylum* is situated in the city of Orleans, and so surrounded by houses on almost every side that from many of their upper windows conversation can be held with the patients in the court-yards below. It is a part of a general hospital, the entire community being composed of, 1st. Three hundred and ten paupers. 2d. A civil hospital with three hundred patients. 3d. Eighty orphans. 4th. A receptacle for diseased "filles publiques." 5th. The lunatic asylum containing five hundred and twenty-one patients. The total population, including resident official and domestics, amounted to one thousand five hundred and fifty individuals. During the year 1849, one hundred and thirty-seven insane patients were admitted; thirty-one were discharged cured, and ninety-three (thirty-two by cholera) died.

Saint Yon Asylum is near the city of Rouen, the ancient capital of Normandy,

and is reported by Dr. Webster as being not only one of the largest, but also one of the best conducted in France. It contains seven hundred and twenty-nine insane patients, of whom two hundred and sixty-one are males and four hundred and sixty-eight females. During the year 1849, two hundred and four patients were admitted; seventy-six were discharged cured, and one hundred and nine (thirty-three of cholera) died. As seem to be the tendency even when the wards of this institution were most inconveniently crowded.

No one can read this report of Dr. Webster without being struck with the frequent mention made of the noisy and excited state of the female patients, and not less so with the large amount of restraining apparatus now in use in nearly every institution which he visited. In the eight Provincial asylums visited by Dr. Webster, in 1850, and which contained a total insane population of three thousand three hundred and sixty-six, he found one hundred and sixteen under restraint, and of these the proportion of females was considerably greater than of males.

The great progress made in France, within a few years, in reference to the nature, pathology, and treatment of mental diseases, is referred to with commendation, and the regret which we have often felt is fully participated in by Dr. Webster, that of all the regular reports made by the physicians of the various asylums in that country, few if any are printed, but, "like many other public papers, become buried in the archives of the prefectures," the minister's bureau, or consigned to unmerited oblivion in some similar receptacle. It must also be quite obvious, from the details given of the medical staff in most of these institutions, that the physicians who devote their time and talents to these institutions, are not liberally or at all adequately paid for their services, while in not a few there is no proper provision made for the requisite number of medical officers.

Dr. Webster's familiarity with institutions for the insane makes his remarks in reference to the general mode of treatment, and especially in reference to the necessity and effects of restraining apparatus, interesting and valuable. He believes, as we do, and illustrates the truth of his belief from statistical facts, that the frequent use of restraint tends rather to increase than diminish noise, violence, accidents, escapes, and even suicides.

The importance of giving some amount of clinical instruction on insanity is generally recognized, and Dr. Webster's observations lead him to believe that no objection exists to such a course in large pauper institutions, and that no more injury would result to the patients from a class of students passing through the wards of such institutions devoted to the insane, than through those of a female hospital.

The study of mental diseases is obviously too much neglected by medical students in Great Britain no less than in this country, and Dr. Webster, in addition to a very pleasing sketch of his foreign tour, has furnished us with a large mass of valuable facts, and a strong argument in favour of this kind of clinical instruction, which cannot fail to be read with interest by the members of the medical profession. T. S. K.

Art. XXI.—*A Practical Treatise on Dental Medicine, being a Compendium of Medical Science as connected with the Study of Dental Surgery.* By Thos. E. Bond, A. M., M. D., Professor of Special Pathology and Therapeutics in the Baltimore College of Dental Surgery. Philadelphia, 1851: pp. 324.

American dentistry is doing everything which the severest criticism can require to establish its claims to the rank of a distinct speciality of medicine. The number and value of its periodicals; the rapid succession of new standard and elementary works which as journalists we have occasion to notice; and the regular and steady increase of its collegiate foundations, challenge for our brethren in this department of the healing art the highest admiration and praise.

The profession styled itself Dental Surgery, while its pretensions were yet limited almost exclusively to the operative and artistic treatment of its subjects; and the earlier books and publications were chiefly occupied with mechanical and chirurgical remedies and appliances; but enlarging experience and deepening reflection in good time liberalized the science, and discovered its broad and general relations to all the departments into which the healing art has been divided for convenience of study and practice.

This book of Dr. Bond is, we believe, the first work published in which the therapeutics proper of dentistry has been systematically separated from its surgery, and recognized and treated in reference to this distinction. It is, at least, from that side of the subject, and by an author, not a practical dentist, but a public teacher of hygiene, pathology, materia medica, and medical practice in their application to the profession. Dr. Bond is specially qualified for this service, and in the book before us, has performed it happily.

The etiology, symptoms, diagnosis, and nature of disease are treated in as many chapters, upon the received principles of medical science and medical practice, in reference to the special topics of his work, with great clearness and ability. Particularly, there are about fifty pages occupied with the morbid effects of dental disease upon the general system, which make the work of the highest value to the general practitioner, and show how large a service the dental surgeons have already rendered to general medicine both in diagnosis and remedial practice. Indeed the work so well performs its double duty to dentist and physician, that we are at a loss to say which is the more indebted to the author for its publication; nor need we, for both need it, and to both we warmly recommend it. We spoke above of Dr. Bond's separation of the medicine from the surgery of dentistry. This must be qualified a little, for he does not *rigidly* observe the distinction which he so evidently feels, and feels perhaps the more that he is not himself a *surgeon* dentist in the strictness of the title. For ten years he has filled the chair of dental pathology and therapeutics, and now contributes nobly by this publication to the stock of knowledge proper to his department; but he has also given a dozen chapters of his work to diseases and treatment of the teeth and their dependencies, which are strictly *surgical*. We make no objection to this, for there are probably good reasons for embracing these chapters in his plan, and his method involves no confusion; but we respectfully suggest, for the consideration of our author in future editions, that a severely scientific division of the several departments of the profession is the step now required for its advances and growth. Nothing is so necessary in the cultivation of science as correct classification. Mental, like chemical analysis, must separate its subjects into their simple elements, before it can fully comprehend or command them. There is a stage of progress which demands exactitude of system and precision of nomenclature, and dentistry has reached it. We have spoken, or intended to speak, heartily in praise of Dr. Bond's work. It has unmistakeable excellence of thorough medical science in its subject matter, and of capital authorship in its style and treatment, and the suggestions which we take leave to offer to our author in no respect abate our admiration for him or his performance. We would have been glad to find a chapter *distinctly* and *generally* devoted to constitutional irritation, shocks and sympathetic affections connected with diseases of the teeth, extractions and other operations, and such mischiefs as may result from the various modes of filling teeth, shutting up exposed membranes by capping or otherwise, amalgam fillings, &c. &c. The use of chloroform and other anæsthetic agents deserved also, we think, a chapter in a treatise by an author whose position and ability would have given his opinions and instructions so much deserved weight with practicing dentists. Beside these things, which in substance and form concern the interests of dentistry, there is one error which requires correction, for the sake of professional equity and even-handed justice to the living and the dead. In the article upon "amputation of the lower jaw," at page 275, Dr. Bond correctly credits Dr. Mott with the honor of being the first surgeon who amputated the lower jaw at the articulation; but he quotes Dr. Rees, without correction, for the assertion that after Dr. Mott, who operated in 1821, except M. Cusack, of Dublin, the operation was not "performed by any others

until 1842." We have before us "Cooper's First Lines of the Practice of Surgery," in which a detailed statement of the operation, as performed successfully by Dr. Geo. McClellan, of this city, in 1823, is given; accompanied with a handsome engraving of the appearance of the patient before and after the operation, and of the jaw and tumour which were removed.

Dupuytren, as early as 1812, exsected a portion of the under jaw, and Dr. Deadrick, a surgeon of Tennessee, was two years before him in the same bold operation. Originality in surgery, in medicine, is not always easily ascertained, nor is it worth quite all the fighting which it has occasioned; but justice ought to be done as nearly as it can be, in all cases. Some editors and annotators have taken so much pains to depreciate their rivals and cotemporaries, that unsuspecting writers who follow them are sometimes unconsciously made to repeat the injustice which they would not willingly commit. Dr. Bond has been cautious enough to give his authorities for his statements, and so made *them* responsible for their truth. We make room for the following extract from the work which we have been noticing, and give it for its valuable hints to practicing physicians, and as a specimen of our author's style of treating his subject. "That diseased conditions of the teeth and the structures adjacent to them, do exert a most pernicious influence upon the general health, is a fact as well established as any other medical observation; yet the medical profession are, with very few exceptions, entirely unaware of it. We are not apprised that the subject is ever alluded to by lecturers on the practice of physic, when recapitulating to their classes the causes of functional disturbance and constitutional suffering; it is not noticed in the many text-books in practice; and, certainly, however frequently the physician may look into the mouths of his patients, it is very rarely that his comprehensive glance perceives anything worthy of note in the decaying organs of mastication. It is full time that practitioners of medicine should perceive the importance of the teeth and of their diseases; but, until they do so, it is the more important that the dentist should be able to point out the causes of obscure disease, which the physician has in vain endeavoured to discover, simply because he has sought for it everywhere but in the right place. It might be granted, *à priori*, that, if physiological conditions of the teeth, owing to their peculiar position, association, and history, may exercise powerful influence upon the health of other organs, pathological conditions of these same teeth cannot be entirely harmless. Again, if we would examine the structure of a tooth, and perceive how completely its sensitive part is enclosed in an unyielding bony case, we might readily infer, from the consequences of compression in other parts, that the swollen and inflamed pulp, &c., would be exceedingly painful. If, too, we would regard the close connection existing between the teeth, the rapidity with which the flash of sympathetic pain darts along the nervous cords which vitalize them, and the intolerable and protracted suffering which ensues upon even trifling irritation of these sensitive filaments, and remember that pain itself is fully capable of deranging the whole economy, and inducing serious and fatal disorder, we might, without the aid of much reflection, adopt the very rational conclusion that the diseases of the teeth must be of considerable consequence to the entire organization. We might, also, with similar propriety, conclude that the teeth were not made merely for ornament, and that mastication and insalivation are something more than mere forms of introduction to the stomach; that they are important to digestion, which is important to the entireness of organs and the performance of function; and that if mastication, and the insalivation accompanying it, be imperfectly performed, some corresponding imperfection of digestion must result. We might also infer, from the known consequences of long-continued morbid influences, however unimportant in their immediate action, that disturbance of digestion constantly repeated, must, in time, develop evils of a serious character." E. T.

Art. XXII.—*Address before the American Medical Association, at the Anniversary Meeting in Cincinnati, May 8th,* 1850. By John C. Warren, M. D., President of the Association. Boston, 1850: 8vo. pp. 65.

This address is elevated in tone, and replete with useful information. Such would be expected in any production by its venerable author. The late President of the Association is, indeed, one of the brightest ornaments of our profession at the present day; a distinction to which he is fully entitled not only from his numerous and brilliant achievements as a surgeon, and the important contributions he has made to the improvements of our art, but also from the faithfulness with which he has invariably upheld the dignity and standing of our calling, and the bright example he has set of illustrious character. Arrived now at an age when most men seek repose, he still labours with all the zeal of youth for the advancement of our science, and incessantly occupies himself with laying open to his brethren the rich fruits of his long and ripe experience.

"Standing, as I do," remarks Dr. Warren, "on the verge of professional life, and quitting perhaps the last official station I may be called upon to occupy, I naturally turn back to survey the course I have passed through, with a view to discover whether there is anything in it which may be interesting and profitable to those who are to follow."

Influenced by this noble and liberal sentiment, the author gives us graphic sketches of the eminent men he has met with during his professional career, comprising most of those who have shed lustre on our science during that period, and concludes his address by notices of the principal improvements in Medicine in the latter years of the last half century—the microscope, lithotrity, tenotomy, cold water, and ether.

We earnestly commend this address to the attention of the profession.

Art. XXIII.—*New Remedies, with Formulæ for their Administration.* By Robley Dunglison, M. D., Prof. Inst. Med. &c., in Jeff. Med. Coll. Sixth edition, with extensive additions. Philad., Blanchard & Lea, 1851: 8vo. pp. 755.

The fact of this work having gone to a sixth edition affords sufficient evidence that it has been acceptable and serviceable to the profession. It indeed comprises a vast amount of highly useful information, compiled from various sources, and most of which is not accessible to the mass of physicians. The present edition has been carefully revised, and largely augmented by the numerous additions made to our therapeutic agents within the period that has elapsed since the publication of the previous edition.

"The last few years," the author remarks, "have been rich in valuable gifts to Therapeutics; and amongst these, ether, chloroform, and other so called anæsthetics, are worthy of special attention. They have been introduced since the appearance of the last edition of the '*New Remedies.*' Other articles have been proposed for the first time, and the experience of observers has added numerous interesting facts to our knowledge of the virtues of remedial agents previously employed. To include all these, it has been necessary to add very greatly to the dimensions of the present edition.

"The therapeutical agents now first admitted into this work, some of which have been newly introduced into pharmacology, and the old agents brought prominently forward with novel applications, and which may consequently be regarded as *New Remedies*, are the following: Adansonia digitata, Benzoate of Ammonia, Valerianate of Bismuth, Sulphate of Cadmium, Chloroform, Collodion, Cantharidal Collodion, Cotyledon Umbilicus, Sulphuric Ether, Strong Chloric Ether, Compound Ether, Hura Braziliensis, Iberis Amara, Iodic Acid, Iodide of Chloride of Mercury, Powdered Iron, Citrate of Magnetic Oxide of

Iron, Citrate of Iron and Magnesia, Sulphate of Iron and Alumina, Tannate of Iron, Valerianate of Iron, Nitrate of Lead, Lemon Juice, Citrate of Magnesia, Salts of Manganese, Oleum Cadinum, Arsenite of Quinia, Hydriodate of Iron and Quinia, Sanicula Marilandica, and Sumbul."

It will thus be perceived that the additions to the present edition have not only been numerous, but important, and to increase the practical value of the work to the therapeutical inquirer, the author has added to the index of diseases the particular pages in which the various remedies prescribed in those diseases are referred to.

Art. XXIV.—*On Diseases of Menstruation and Ovarian Inflammation, in connection with Sterility, Pelvic Tumours, and Affections of the Womb.* By Edward John Tilt, M. D., &c. &c. New York, Saml. S. & Wm. Wood, 1851: 12mo. pp. 286.

We have so recently recorded our favourable opinion of this work (see No. of this Journal for Oct., 1850, p. 401 *et seq.*) that it will be sufficient, on the present occasion, to announce its reprint in this country, and to recommend it to all who are interested in the subjects of which it treats.

Art. XXV.—*First Principles of Medicine.* By Archibald Billing, M. D., A. M., F. R. S., &c. &c. Second American, from the revised and improved fifth London edition. Philad., Lea & Blanchard, 1851: 8vo. pp. 246.

Few medical works have been received with greater favour than that, the title of which heads this article. It has gone through five editions in England and two in this country, and is now recognized as one of the classics of our professional literature. It is sufficient, under these circumstances, to state that the present edition has been carefully revised by the author, who has profited by the criticisms he has received, and endeavoured to render the work more worthy of the patronage of the profession.

Art. XXVI.—*Review of Chemistry for Students, adapted to the Courses as taught in the principal Medical Schools of the United States.* By John G. Murphy, M.D. Philadelphia, Lindsay and Blakiston, 1851: 12mo. pp. 328.

The above work purports to be an aid to the student of medicine in reviewing the subject of chemistry, for the purpose of refreshing the memory in the elementary and important points, and not as a substitute for more elaborate treatises, or as a text-book to accompany a course of lectures on this branch. The author, having experienced the difficulties which meet the medical student under these circumstances, desires to lighten his labour, and offers an abbreviated treatise, comprehending the principal facts in relation to the elementary bodies and their most important compounds. This the author has accomplished in a satisfactory manner, and the student will no doubt find his advantage in embracing the opportunity offered of lessening labour and saving time, especially at periods when the review of all the branches taught in the schools makes this latter a point of considerable importance. In thus noticing favourably the scope of the work and manner of its general execution, it still is necessary to

allude to points of minor importance, which the author, perhaps from want of practice, has allowed to escape his attention. These are principally in the use of symbols, in which no error or difficulty could arise to the advanced student, but it might produce some confusion in the mind of the beginner, by whom this work would perhaps be used as a text-book, although such is not the design of the author. Thus the typographical errors Co_2 So_2 So_3 have been allowed to stand for CO_2 SO_2 SO_3, and the symbol Pt. has been adopted without any mark of distinction to express proteine, the same symbol having been previously used to signify platinum. These are, however, so few in number, as not materially to affect the value of the work as a whole, or to detract from the favourable opinion previously expressed of its utility as an assistant, under the circumstances in which it is designed to be used. R. B.

Art. XXVII.—*The Uses and Abuses of Air; showing its Influence in sustaining Life, and producing Disease; with remarks on the Ventilation of Houses.*

This is a very neat duodecimo of about two hundred and fifty pages, prepared for popular use, and published by J. S. Redfield, of New York, in his series of "*Tracts for the People.*" It is filled with interesting and practical information upon the important topics of the relations of food and air to our bodies, and the great advantages resulting from a knowledge of these, in order to secure that greatest earthly desideratum, health. The numerous coloured illustrations, exhibiting apartments with the means of warming and ventilating, add greatly to the value of this excellent little treatise, which deserves the most extensive, circulation. G. E.

Art. XXVIII.—*Consumption of the Lungs, or Decline; the Causes, Symptoms, and Rational Treatment, with the means of Prevention.* By T. H. Yeoman, M. D. Revised by a Boston Physician. Boston & Cambridge, J. Monroe & Co., 1850: 12mo. pp. 103.

The nucleus of this small volume was, we are informed by the author in his preface, a series of papers published in 1847 in a London periodical of considerable circulation. The essay comprises a concise but very sensible sketch of the general history, course, and terminations of tubercular phthisis—the habits and conditions of life which tend to develop or to arrest it; together with an account of the treatment that has been found, by experience, most useful for the control of certain of its symptoms, and best adapted to check its onward and fatal course.

There is scarcely anything to be objected to in the views advanced by Dr. Yeoman in reference to either of the points embraced in the present essay. He has not taken up his pen for the purpose of promulgating any novel doctrine as to the nature or cause of the disease—nor to advocate any special mode of treatment or particular remedy for its cure or prevention. He has merely presented a plain, sensible *resumé* of what the results of investigation and experience have taught us in regard to the pathology, etiology, prophylaxis, and management of tubercular phthisis, and as such it may be read with interest, and we are convinced with some profit, by the medical student and junior practitioner. The work, however, is too concise and limited in its details to afford all the information in relation to the important disease of which it treats required by the physician to enable him to arrive at a correct diagnosis in the early stages of phthisis, or to determine upon the proper course of medication or regimen demanded by each particular case that may present itself for his judgment. The treatise was not, in fact, intended for the use of the profession—but for the instruction

of the general reader. We very much doubt, however, whether as a popular work it is calculated to do much good. It is questionable whether the few predisposed subjects its sound hygienic precepts may save from the occurrence of an attack of consumption, or the still fewer patients in whom the disease has already developed itself, the very sensible remedial measures laid down by the author, shall guard, for a time, from its rapid progress, will compensate for the actual mischief it is calculated to inflict upon the non-professional reader, by leading him into the vain belief that he can detect, with certainty, in his own person, or in the members of his family, the primary stage of so insidious a disease as pulmonary phthisis—or translate, with sufficient accuracy, the true import of each symptom as it develops itself, so as to resort with safety and effect to the remedies—medical or hygienic—which it calls for. It will be very apt to lead one class of its readers into a fatal security as to their actual freedom from pulmonary tuberculosis, and unnecessarily to alarm another class by inducing in them the belief that they are actually its subjects, when such is not the case.

If to succeed in the practice of medicine—that is, in the proper adaptation of the principles of pathology and therapeutics to individual cases—requires not only that years should be spent in the acquisition of those principles, and their clinical application, but habits of close application, educated with particular reference to diagnosis and the application of remedial agents to arrest the progress of disease, or to control its leading symptoms in the special cases and circumstances under which it may present itself, it must be evident that any attempt to teach, by popular treatises, the domestic management of any disease must necessarily be a failure, if it do not lead, in too many instances, to prejudicial and even fatal results. D. F. C.

Art. XXIX.—*An Appeal to the Public in behalf of a Hospital for Sick Children.* London, 1850.

This is a very strong appeal, and we trust it will prove to be a successful one, in favour of an institution, the want of which, in any large town, is a glaring deficiency in the list of its medical charities, and must of course be eminently so in so large and densely populated a city as London.

From the investigations of a committee of the Statistical Society, it appears that the whole number of children under 10 years of age, in all the hospitals of London, in Jan. 1843, was only 136, and, of even this small number, 41 had been admitted in consequence of accidental injuries, and 69 for surgical treatment, so that only 26 were suffering from internal diseases. When it is remembered that more than one-third of the whole population of London are cut off during infancy and childhood, it must be manifest that much misery results and many lives are lost for the want of such a charity as the one proposed. Such an institution would not only afford comfort to the poor and prolong their lives, but, by affording the means of instruction to the student, and furnishing opportunities for extending the boundaries of our knowledge concerning a class of diseases, frequent in their occurrence, dangerous in their character, and often very obscure in their symptoms, its benefits would be extended to the highest as well as to the humblest classes of society.

Would our limits permit, we could easily show that the objects desired can only be attained by the foundation of a hospital exclusively devoted to the treatment of children; for the diet, the treatment, the nursing, the hours to be observed, and some of the hygienic requirements, are different from those suited to a hospital for adults.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Weight of the Brain at different periods of Life.*—The *London Journal of Medicine* for February of the present year contains the results of some interesting recent investigations on this subject by Thos. B. Peacock, M. D. The author gives the following tables of the average weight of the brain at different ages:—

Average Weight of the Brain at different periods of Life in Males.

Ages.	Numbers weighed.	Average weight. oz. dr.
1 to 2 years	3	39 7
2 to 3 ..	4	44 1
3 to 5 ..	6	44 13.16
5 to 7 ..	4	45 4.25
7 to 10 ..	6	46 14.33
10 to 15 ..	13	47 15.2
15 to 20 ..	11	49 5
20 to 25 ..	21	50 13.9
25 to 50 ..	123	50 3.8
50 to 90 ..	53	48 9.4
	244	

Average Weight of the Brain at different periods of Life in Females.

Ages.	Numbers weighed.	Average weight. oz. dr.
1 to 2 years	3	31 1.3
2 to 3 ..	9	37 5
3 to 5 ..	4	41 0.5
5 to 7 ..	5	41 4
7 to 10 ..	2	40 6
10 to 15 ..	3	40 10.06
15 to 20 ..	18	45 4.1
20 to 25 ..	15	46 1.8
25 to 50 ..	69	45 0.6
50 to 90 ..	23	43 0.3
	151	

"The extreme range," Dr. P. observes, "in the weight of the encephalon of the adult male is from 34 oz. to 62 oz. 12 dr., the number of brains weighed having been 197; and in the adult female the range is from 36 oz. 12 dr. to 54 oz., the number weighed having been 107."

1. The average weight of the encephalon of the adult, as calculated from Dr. Peacock's observations, is, in males, 50 oz. 6 dr.; and in females 44 oz. 7½ dr. Dr. P.'s previous observations* gave an average of 50 oz. 3 dr. for the weight of the encephalon of the adult male, and of 44 oz. 14 dr. for that of the female. A similarly close correspondence will be observed on comparing the respective average weights of the several portions of the brain, as deducted from the two series of observations.

2. The observations now published show, with little exception, an increase of weight in the brain up to the period of adult age, but they are too few to satisfactorily illustrate this point. The tables compiled by Professor Reid,† that drawn up by Dr. Boyd‡ from a very extended series of observations conducted at the St. Marylebone Infirmary, and the tables in Dr. P.'s former communication, founded upon the united observations of Dr. Reid and himself, have so conclusively established the fact that the brain does not attain its full development till from twenty to twenty-five years of age, says Dr. P., "that I should not have thought it necessary to insist upon it, had not Sir W. Hamilton§ recently repeated, as fully established, the opinion which he formerly expressed,‖ that the Wenzels¶ were correct in stating that the brain attained maturity at or before the age of seven." To illustrate, therefore, the law of development of the brain, Dr. P. has calculated the whole of the observations of Professor Reid and himself.

By these tables it is shown that the average weight of the brain increases up to from twenty to twenty-five years of age.** During middle life, or from twenty-five to fifty years of age, it retains about the same weight, and in after-life it declines considerably. It is true that some exceptions will be found to this rule among the separate observations, but though it occasionally happens that the brain of a young person may be found to equal or exceed in weight the average of adults of the same sex, such exceptions do not frequently occur, and can then only be ascribed to the organ having attained premature maturity, or, most generally, to the mode in which death has occurred. In cases where there is much obstruction to the circulation through the lungs during the last periods of life, the brain is found very much engorged, and though great care be taken to deprive it of the blood, it will still weigh heavier than if death had taken place under different circumstances. Thus it is that the brains of persons who have died shortly after the receipt of extensive burns, or in the collapsed stage of cholera, are found to be unusually heavy. Generally also persons who have died of acute diseases have heavier brains than those who have long suffered from exhausting causes. To obtain, therefore, unexceptionable results, it would be necessary to calculate the average weight of the brain in persons who have died under precisely similar circumstances, and in observations so framed I am satisfied that the exceptions to the general rule would be very rare.

Sir W. Hamilton†† states that he has "established, apart from the proof by averages, that the human encephalon does not increase after the age of seven at the highest. This has been done by measuring the head of the same young person from infancy to adolescence and maturity: for the slight increase in the size of the head after seven (or six) is exhausted by the development to be allowed to the bones, muscles, integuments, and hair." It is, however, evident that this method of investigation can show only the period at which the brain attains its greatest bulk, and not that at which its development is completed; for every practical anatomist is familiar with the fact that the density of the brain varies greatly at different periods of life. Calculations of the average

* Edinburgh Monthly Journal of Medical Science, vol. vii. pp. 101, 166. 1846.
† Edinburgh Monthly Journal, vol. iv. 1843.
‡ Wagner's Physiology, translated by Willis. 1844. Appendix, p. 700.
§ Edinburgh New Philosophical Journal, Jan. to April, 1850, p. 330.
‖ Monro's Anatomy of the Brain. 1831.
¶ De penitiori structura cerebri Hominis et Brutorum, p. 267, fol. Tubing. 1812.
** In Dr. Boyd's Table, the weight, both in males and females, is greater at from 30 to 40 years than at any other period of life.
†† Edinburgh New Phil. Journ. January to April 1850

weight of the brain afford the only means by which we can ascertain the period at which its full development is attained, and the changes which it undergoes during the progress of life.

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2. *Anatomy of the Subcutaneous Bursæ.*—Mr. Wm. Coulson gives (*London Journ. Med.*, Jan. 1851) the following description of the subcutaneous bursæ. These are situated in various parts of the body immediately beneath the integuments, of which they are an appendage. They are connected with, and belong to, the subcutaneous cellular adipose membrane, being in no instance continuous with the deep bursæ, or with the tendons, muscles, or bones, which they protect. The structures composing them are, first, the capsule itself; secondly, certain filaments traversing it; thirdly, folds, or septa, being reduplications of the inner membrane, and these may be either partial or complete; and fourthly, small adipose corpuscular fringes. There is, also, the peculiar fluid secreted by the interior of the sac. In respect of their being shut sacs, intended to facilitate motion and to protect opposing surfaces, and as regards also the fluid they secrete, these bursæ have analogies, no doubt, with the deeper bursæ. In the more perfect synovial capsule of the knee-joint, for example, we not only find a shut sac, but septa forming the alar ligaments; being nearly analogous to the septa of the subcutaneous bursæ. Nor does the analogy stop here, seeing that we find the alar ligament so fully developed in some animals as to divide the knee-joint into two cavities—thus converting it from a unilocular into a bilocular sac: this happens in many of the superficial bursæ. The subcutaneous bursæ vary somewhat in form, and even, perhaps, a little in their structure. In the axilla, for example, where they have, probably, the simplest form, they resemble the cells of a bee-hive piled on each other. In the order of simplicity of structure, those of the groin follow. The mode of formation of these bursæ in the fœtal state illustrates, I think, their varieties in the adult. For we find, sometimes, that the cellular tissue, in no way modified, takes the place of a properly developed bursæ; and this is exactly what happens up to the fifth month of fœtal life. At other times, in the adult, we find them small, but perfect; showing that their development has been arrested. Even the anconal bursa, viewed by Schreger as the most perfect, has been found, by other anatomists, small, contracted, or scarcely perceptible. Pathological changes also, by altering the condition of these bursæ, reduce them to the tissue, out of which they were formed. Sometimes the interior is filled with a serous fluid, and the walls of the sac are thin, and almost pellucid; at other times they become soft, flaccid, porous, and reticulated, and lose their cohesion—clearly indicating a retrogression to their primitive condition.

The fluid secreted by, and contained within, these subcutaneous bursæ, is held by chemists to be an aqueous solution of albumen, combined with saline matters. The epithelium, common to all true articular synovial membranes, cannot be discovered, even with the aid of the microscope, in the lining membrane of these bursæ.*

It would seem that, prior to the second month of fœtal life, these bursæ are open. A remark applicable to the entire system I now describe is that in youth the capsule is thin and pellucid; as age advances, the bursæ become opaque and yellowish. Blood-vessels abound on the exterior of the sac. The inner surface of the dermoid segment resembles a serous membrane; the opposing surface, on the contrary, has a synovial appearance; that is, it is soft, pulpy, and as if covered with glistening elevations. But if these two surfaces differ, as has been alleged by Schreger, their secretions may also differ, giving a more complex character to the fluid than was at first supposed.

The subcutaneous bursa with which surgeons are most familiar is the one situated over the patella. This bursa, which may be called the patellar, is of

* Mr. Toynbee examined for me some fresh fluid, which I removed from a carpal bursa. He says: "The gelatinous matter from the bursa consists of a transparent, viscid, semi-fluid substance, interspersed through which are rounded and ovoid cells, containing granular matter, and having one or two transparent nuclei attached to their inner surface."

a globular, or rather oval shape, the base being usually limited by the extent of the bone. The walls of the sac, in contact in the healthy state, are bedewed by a fluid analogous to what we find in the ordinary cellular tissue of the body, performing, no doubt, the function of synovia; like that fluid, as has been already mentioned, it is an aqueous solution of albumen, combined with saline matters.

The patellar bursa belongs essentially to the superficial or subcutaneous system: it is exterior to the crural aponeurosis; and microscopic research, so much improved and extended of late years, merely confirms the accurate conceptions of Schreger. The epithelium investing the inner surface of the articular synovial membranes is not found in the interior of this or of any other bursa. The peculiar glistening fibres already described are found to stretch across at various points, forming septa or partitions, more or less complete. In many persons, two bursæ, and even three, have been observed developed over one patella, perfectly distinct from each other. This duplication or triplification of the bursæ is not confined to the patellar bursæ, but extends as well to others. My friend Mr. Ireland brought me, some time ago, a patient with a bursa of the size of a marble, situated over the right os magnum, which the patient wished to have removed. I dissected it entire, so that it rolled on the table: in three or four months afterwards, another bursa, as large as the one which had been previously removed, made its appearance in the same situation. Thus may be traced to an imperfect knowledge of the anatomy of these organs the theory of accidental bursæ. When a second bursa appears after the removal of the first, it is simply the enlargement of a second, coeval with the first, and observed then only for the first time by the surgeon.

In the popliteal space, we usually find three subcutaneous bursæ—an external, internal, and middle. The history of these is curious: with similar relations to all the others, they yet present, when enlarged, certain peculiarities. Both surfaces against which the enlarged bursa presses being comparatively soft and yielding, the swelling does not assume the distinct globular form which those situated over bones exhibit. A case of this kind came under my notice a few months ago. A young woman, æt. 32, applied to me, in July last, with a swelling in the right popliteal space, situated principally in the centre of the ham, and of the size of an orange, though more compressed. It was movable, free from any pulsatory movement, and, when firmly pressed, gave an elastic feel to the fingers. The integuments were very little changed in colour, and the swelling was free from pain. I entertained no doubt of its nature, and punctured it by means of a grooved needle, when an ounce and a half of a white gelatinous fluid, much resembling the vitreous humour, escaped; a compress was applied over the part, strips of soap plaster over this, and a bandage tightly over the whole. On removing the pressure at the end of a week, a re-accumulation of the fluid had taken place. The swelling was again punctured, and the fluid, which was much less than on the previous occasion, allowed to escape. The pressure was applied in the same way as before, and removed from time to time. No fresh accumulation took place, and at the end of two months she was quite cured. Schreger has described this bursa, but has given no drawing of it; he does not seem to have met with it in a diseased condition.

There is usually a distinct bursa over each malleolus; but the external malleolar bursa is the one most liable to be enlarged or distended with fluid. At one time it was thought that in club-foot an accidental bursa was formed, to protect the integument at the point of greatest pressure; but this notion has been distinctly refuted. A subcutaneous bursa, occasionally of considerable size, very generally exists over the distal extremity of the metatarsal bone of the great toe, close to the joint, and the term bunion has been applied to it when inflamed or thickened. Subcutaneous bursæ are met with over the trochanter major and tuberosity of the ischium, in the groins, and in connection with the lower part of the superficial fascia of the abdomen.

Bursæ of this kind exist also, as has been already mentioned, in the axillæ, and over the condyles of the humerus. An enlarged bursa over the inner condyle of the humerus came under my notice. C. W., æt. 18, applied to me on the 18th August, with a swelling over and a little above the inner condyle. As

the patient, a few days before, was stooping to raise something heavy from the floor, he first felt pain in the part, and shortly afterwards discovered a slight swelling. At first, it was like a small indurated gland, but it gradually increased to the size of a walnut. It was unattended with pain, and gave, on pressure, an elastic, indistinct fluctuating feel. On the 3d September, I punctured it, and there exuded about a tablespoonful of transparent gelatinous fluid. Firm pressure was applied, and removed from time to time, and the swelling has not returned.

The bursa, which we may call anconal, as situated over the olecranon, is well known, and is often enlarged. There is also one over the distal extremities of the radius and ulna, and one on the carpus, corresponding to the surface of the os magnum, which is often enlarged. A girl, 13 years of age, applied to me on the 7th September, with a swelling like a large marble, which had existed six months, and was situated on the posterior surface of the right carpus, over the os magnum. I punctured it with a grooved needle, evacuated a teaspoonful of white vitreous-looking fluid. Pressure was applied over the part, and renewed every week for three times. The patient is now quite well.

That bursæ in this situation may sometimes acquire considerable size is shown by the following case. E. F., æt. 30, applied to me on November 15th, on account of a large bursa over the os magnum, and a little to the radial side of it. About eight years ago, it first arose, from her husband pressing this part of her hand very hard with his knuckles—to use her own expression, by "his knuckling her." Immediately after this, a swelling commenced, and at the end of a twelvemonth it had attained the size of a walnut. It was then punctured, and near two teaspoonfuls of fluid were evacuated. No pressure was applied; the swelling disappeared until two years ago, since which time it gradually increased, till it reached the present size. The swelling prevented her from turning her hand back, and from wringing clothes. There was a great feeling of weakness in the joint, and occasional pain in and about the swelling, especially after exertion. On November 18th, I punctured it with a needle. As the case is still under treatment, I am unable to give the result: I feel no doubt, however, of its permanent dispersion.

There is a large bursa over the first joint of the thumb, and others, often double, over the first and second joints of the fingers. That bursæ exist in other parts of the body, I have no reason to doubt; one is not unfrequently found under the integuments, at the angle of the jaw; and others, extremely minute, and rarely demonstrable, are said to exist under the integuments of the back, corresponding to the spinous processes of the fifth, sixth, and seventh cervical vertebræ. More extended pathological inquiries may enable us still to discover others; for it is by their accidental enlargement that the presence of some of them has become known to surgeons.

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3. *On the Round Ligament of the Uterus.* By G. Rainey, Esq.—Speaking of the difference between the striated and non-striated varieties of muscular fibre, Mr. Rainey denies that the round ligaments are composed of the latter; and affirms, on the contrary, that they are composed of the striated or voluntary fibre. This opinion he supports on the following grounds—first, that the round ligament arises from three tendinous and muscular fasciculi; one from the tendon of the internal oblique, a centre one from the upper column of the external abdominal ring, the third from the inferior column of the same. These uniting form a round end, which expands upon the angle of the uterus. The striped fibres chiefly occupy the centre of the cord, but as they approach the uterus they lose this character, and assume that of the dartos muscle.

Mr. Rainey further states that the round ligaments do not, as was supposed, emerge from the external ring to be inserted upon the mons veneris; and that their use is in some manner connected with the act of coition.

In the same essay, the author investigates the changes which the uterus undergoes during gestation. He regards the increase in size to depend upon the development of the embryonic nucleated fibres of the unimpregnated uterus, which receive a new impulse on the reception of the ovum. After parturition, he supposes the fully developed fibres to be absorbed and replaced by fresh embryonic ones.—*Philosophical Transactions.*

4. *New Muscles of the Urethra.* By H. Hancock, Esq.—A great deal has been said and written upon the subject of spasmodic stricture and strictures in general; but I am not aware of any one having hitherto satisfactorily accounted for the several phenomena displayed in the various forms of impediments to the passage of urine which are usually described as spasmodic stricture. Some have ascribed them to inflammation; others to engorgement of the net-work of vessels surrounding the prostate; others, and the larger number, to morbid and irregular contraction of the muscles surrounding the membranous portion of the urethra, viz., Wilson's, Guthrie's, and Santorini's muscles, together with that usually denominated the "accelerator urinæ muscle." I have always considered these explanations unsatisfactory, and totally inadequate to account for the difficulties I have encountered in the treatment of urethral diseases. I have been unable to understand how voluntary muscles should continue in forced and excessive action so long as spasmodic retention of urine has been known to exist. I have been unable to account for the muscles just named causing spasmodic closure at parts of the urethra which they do not invest. I could not account for the almost complete retention of urine in cases where no impediment presented to the passage of instruments of large size; neither, by the reasons usually assigned, could I account for the sudden contractions of the urethra so frequently met with, and which could only be ascribed to the more general presence of muscular stricture than has hitherto been considered to obtain in these parts. Assisted by my friend Mr. Hogg, to whom I am greatly indebted, I have lately paid great attention to this subject; and I beg to submit to the society the results of our investigations. Sir E. Home, and various other surgeons, have described the urethra as muscular; but in this they were in error. The urethra itself consists of mucous membrane, lined by its epithelial scales, but it is closely invested by muscular fibres of organic structure similar to, and in fact continuous with, the muscular coat of the bladder. The muscular coat of the bladder appears to me to consist of two layers of involuntary muscular fibres, an internal and an external; the external, partly covered by peritoneum, passes forwards and extends over the outside of the prostate gland; the internal, on the contrary, separated from the mucous lining of the bladder by cellular tissue, accompanies the mucous lining when it becomes urethra, through the prostate gland, forming an involuntary muscular covering to the urethra in its passage through the gland. The membranous portion of the urethra is next closely invested by a continuation of these muscular fibres, which cannot be mistaken for any portion of Wilson's, Guthrie's, or Santorini's muscles, as the latter are voluntary, and present the usual striated appearance when viewed by the microscope, whilst the former are strictly involuntary and nucleated. Conducted forwards upon the membranous portion, they reach the bulb, and here they divide into two portions, a superior and an inferior; the superior continues onward to the orifice of the urethra, lying between the urethra and corpus spongiosum; the inferior passes on the outer surface of the corpus spongiosum, separating it from its fibrous investment, to which the fibres adhere pretty closely; these latter are also continued forward to the orifice of the urethra, and in their course they invest the spongy portion of the bulb; the urethra and the glans penis entering very largely into the formation of that peculiar structure found at the orifice of the urethra, and which appears to consist almost entirely of involuntary muscle and elastic cellular tissue, constituting an additional sphincter muscle to those already described as existing in various parts of the body. It will thus be seen that the corpus spongiosum urethræ lies between two layers of involuntary muscle, the one separating it from the urethra, the other from its fibrous covering, an arrangement, doubtless, exerting great influence upon the expulsion of the blood from the spongy tissue, when erection of the organ is no longer required, as well as upon the acceleration of the passage of the urine along the urethra; and I am doubtful whether the hitherto named accelerator urinæ muscles may not with more propriety be considered a depressor penis, or a direct opponent to the erectores penis. I have thought it right to make this short communication to the Society, as the now proved existence of a muscular and continuous muscular coat to the very orifice of the urethra may tend, in a great measure, to

explain the anomalies met with in the various cases of stricture, and may also be the means of introducing an improved means of treatment. I am still continuing the investigation of this subject; and, should the Society desire it, I shall be happy to bring it forward in a more detailed form at some future period.—*Report of Proceedings of Medical Society of London*, in *Med. Times*, 22d Feb. 1851.

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5. *Fistula of Stomach.*—Dr. Robertson gave to the Medico-Chirurgical Society a short sketch of the history of a patient at present under his care in the Infirmary, in whom a communication between the stomach and external surface of the abdomen had existed for several years. The perforation had resulted from internal causes, and the present condition of the patient encouraged the hope that a series of experiments upon the digestive process might be undertaken without prejudice to the woman's health. Dr. Christison, Dr. Spittal, Dr. Maclagan, and Dr. Simpson made some observations on the case, and a committee was named to make the necessary investigations on the subject. The committee consists of the President, Dr. Christison, Dr. Bennett, Dr Douglas Maclagan, Mr. Goodsir, and Dr. W. Robertson.—*Monthly Journ.*, Jan. 1851.

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6. *Researches to prove the Non-vascularity of certain Animal Tissues.*—The following conclusions are given by Mr. Toynbee as embodying the results of his investigations:—

1. The articular cartilage of joints in a healthy state contains no blood-vessels, and that it is nourished by the vessels which surround it; in certain diseases of the joints, these vessels are prolonged into the substance of articular cartilage.

2. The fibro-cartilages of the joints and of the spine, when healthy, contain blood-vessels only at their circumference; in disease they become vascular.

3. That the following structures of the eye—viz., the cornea, the crystalline lens, and the vitreous humour possess no blood-vessels in a healthy state; in some diseases of the eye the cornea becomes vascular.

4. The epidermis of the skin, teeth, nails, feathers, and the hoofs of animals have no blood-vessels. The hoof of the horse is pervaded by numerous fine canals which circulate a fluid throughout the whole of the substance, and give to it the elasticity so essential to the due performance of its functions.

The author states that his object has been to establish as a law in animal physiology, *that organs are capable of being nourished, and of increasing in size, without the presence of blood-vessels in their substance.*

The application of the above-named law to the study of *surgery*, in reference to the causes of the extension of vessels into the extra-vascular tissues of the eye and the joints, when in a diseased state, and to the measures to be adopted for the prevention and cure of those affections which are dependent thereon, and to *pathology*, in the investigation of the nature of morbid structures, particularly of those classes which contain no blood-vessels, will, the author feels certain, be productive of scientific interest and of practical advantage.—*Philos. Trans.* 1841.

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7. *On the Absorption of Alimentary Substances, and the Functions of the Lacteals.*—M. Bernard read a memoir on this subject before the Academy of Sciences, Paris, in which he proposed to determine, by direct experiment, the nature of the nutritive principles which are absorbed and conveyed by the chyliferous vessels, in order to ascertain if there really exist any alimentary substances which absolutely escape venous absorption, and consequently avoid passing through the liver before arriving at the lungs.

Alimentary substances submitted to digestion are, in the intestinal canal, finally reduced to three principal substances—the saccharine, the albuminous, and the fatty emulsive; on these M. Bernard has instituted experiments:—

1. *With regard to the absorption of Sugar by the lacteals.*—On injecting large quantities of sugar into the stomachs of different mammiferæ, it has been found in the blood of the portal vein, while it was absent from the chyle of the thoracic duct at the same time and under the same circumstances; whence

it is concluded that sugar, before arriving at the lungs, traverses the liver, where it undergoes a peculiar physiological modification. If a solution of grape sugar be injected into the superficial veins of a dog, it speedily passes off by the urine; on the contrary, if the solution of sugar be injected into the radicles of the portal vein, the sugar is no longer eliminated by the kidneys, but passes into the circulation, and is assimilated in the same manner as if taken into the digestive canal. Thus it is shown that the absorption of sugar by the portal system is a condition essential to its assimilation, since, if confined to the lacteals, the saccharine principle is abstracted from the influence of the liver, and is diverted directly into the general venous circulation, as takes place when it is injected by the jugular vein.

2d. *As to the absorption of Albumen by the Lacteals.*—Albumen injected into the general venous circulation soon appeared in the urine. If injected into the portal vein, it does not then appear in the urine, but is assimilated in the same manner as obtains with sugar.

3d. *Absorption of Fat.*—M. Bernard's previous researches have shown that fatty matters are not capable of admission into the lacteals, until an emulsion has been formed by the action of the pancreatic juice. Immediately that this emulsion has penetrated the lacteals, their aspect undergoes an entire change; instead of remaining transparent, like other lymphatics of other parts of the body, they assume a milk-white appearance, and owing to the transparency of the coats of these vessels, the course of the fatty matter may be followed from the intestine to the left subclavian vein, where it is diverted into the thoracic duct. It is not necessary that fatty matters should traverse the liver in order to their assimilation. M. Bernard has injected fatty emulsions into the jugular vein, but has not found that substance in the urine.

Thus the products of digestion may be distinguished with reference to absorption into two groups: *e. g.* 1st, fatty and albuminous matter absorbed by the lacteals, passing into the general circulation without having traversed the liver. The last proposition cannot be taken in so absolute a sense as the former, since experiment and microscopical examination demonstrate that fatty matters are absorbed both by the portal system and by the lacteals.—*London Medical Gazette*, January, 1851.

MATERIA MEDICA AND PHARMACY.

8. *Evil Effects following the Incautious Administration of Chloroform.*—Dr. Bacot stated to the Surgical Society of Ireland, December 7, 1850, that a few months previously he had been sent for, at about half past ten P. M., to see a young lady to whom chloroform had been administered, at twelve o'clock that day, for neuralgic pains of the face arising from carious teeth. She was a healthy dark-complexioned woman, and had, he understood, great repugnance to the inhalation of chloroform, to which she submitted but as a last resource, after having exhausted every other available means of ridding herself of those very distressing pains. From inquiries, he judged that from a drachm and a half to two drachms had been administered before anæsthesia had been produced. At the period of Dr. B.'s visit, ten hours and a half after the administration of the chloroform, the symptoms under which she laboured were those of coma. She was lying on her left side, perfectly unconscious of all around her, her eyelids closed; on raising the lids, the eyeballs appeared much suffused, the pupils irregular, and scarcely acted upon by light. There was considerable congestion about her face, and her head felt hot; surface of the body and legs cold; pulse 90, thready, irregular, and intermittent. Up to seven o'clock her friends had not found much difficulty in arousing her, although she soon relapsed into the same state. Since that hour it had been much more difficult to dispel the stupor, and it was after many endeavours that Dr. B. was able to do so. When roused, however, she intelligently answered a question, but after some hesitation, as if endeavouring to collect her thoughts. She then almost immediately sank into the same comatose state, having first expressed herself to the

effect that she knew that she was dying. Two or three times during the day she had shown hysterical symptoms, crying when moved, and having the same thought of approaching dissolution before her mind. Her bowels (habitually confined) had not been moved for three days. The apothecary, by whom this very powerful agent had been administered, visited her more than once through the day, as also in the evening, but did not take any step towards recovering the patient from the very urgent symptoms under which she was evidently fast sinking.

The general features of Dr. B.'s treatment consisted in the admission of fresh air, strong carbonate of ammonia to her nose, an occasional sprinkle of cold water over the face, stupes of hot water, containing an abundance of mustard, to the feet and legs. As soon as she was able to swallow, draughts of ether and aromatic spirits of ammonia were given her, and in about two hours, when the urgent symptoms were relieved, and some reaction had set in, strong tea was administered, which seemed very grateful, and by which she was much benefited. Previous to leaving her for the night, Dr. B. prescribed a draught containing one drop of croton oil, which affected her bowels in seven hours.

It is worthy of remark that, as she recovered the effects of the chloroform, the neuralgic pains returned to her face with great violence.

At Dr. B.'s visit next morning, she informed him that she had passed a wakeful night, and had suffered much from headache, which was confined to the right temple. This pain continuing through the day, two leeches were applied to her temple, from which she derived immediate relief, and was enabled for the first time to turn off her left side. She was much reduced in strength by this illness, and fainted at her first attempt to sit up in bed, where she was obliged to remain some days.—*Dublin Medical Press*, December 25, 1850.

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9. *Effects of Chlorinated Hydrochloric Ether on Animals.*—M. Flourens read a note to the Academy of Sciences, January 13, in which he stated that he had found this agent to produce a powerful effect upon various animals. Dogs were placed under its full effect in about three or four minutes; all sensibility was completely destroyed, without any impairment of movement. Injected into the crural artery of a dog, both motion and sensation of the posterior extremities were lost, tetanic rigidity being produced. The effects observed were similar to those produced by chloroform and the essential oils; while the ordinary ethers, the fixed oils, naphtha, ammonia, and camphor, produced paralysis, with relaxation of the muscles, when injected by the arteries. The separation of the action of the nerve and of the muscle is thus effected, and a means of physiological analysis is furnished by the use of this ethereal compound.—*London Medical Gazette*, January, 1851.

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10. *On the Inhalation of various Medicinal Substances.*—Dr. Snow recently read a paper on this subject before the Medical Society of London.

He said that, previously to the discovery of etherization, medicines had rarely been inhaled, except with a view to their local action; but that there was no more reason to limit inhalation to pulmonary diseases than to restrict the exhibition of medicines by deglutition to affections of the stomach and bowels. He admitted, however, that the proper administration of medicines by inhalation was attended with much greater difficulties than their exhibition in the usual way. The chief object of his communication was to point out the manner in which certain medicines could be inhaled. According to their different physical properties, they might be inhaled either with or without the aid of heat; when heat was employed, they might be inhaled either in the dry way, or with the vapour of water.* The fumes expelled by heat from the extracts of opium, stramonium, and aconite were inhaled dry. Ammoniacum and other gum resins could be inhaled either in the same way, or with the vapour of water. Turpentine, creasote, camphor, iodine, and benzoic acid had been conveniently inhaled along with watery vapour, by placing the dose of medicine to be used in about half an ounce of water, which was heated by the

* See *Medical Times*, December 7, 1850.

flame of a spirit-lamp. Several of these medicines had also been inhaled at the ordinary temperature of the air, without vapour of water, as also had ammonia, hydrocyanic acid, and chlorine. For drawing nitrate of silver into the larynx in the form of powder, the bowl of a pipe, with a glass tube fitted into it, was used. A grain of nitrate of silver, finely powdered with five grains of loaf sugar, was inhaled, by a strong inspiration, once a day. The sugar was recommended by a French author for diluting the agent, and had an advantage over lycopodium powder and similar substances, which, not being soluble in the mucus of the air passages, caused irritation.

At the hospital for consumption at Brompton, the physicians to which institution had invited Dr. Snow to assist in contriving and superintending the inhalation of medicines, opium had been inhaled by a considerable number of phthisical patients generally with marked benefit. Relief had also been obtained from several other medicines; but the inhalation of iodine and chlorine had apparently not been attended with any advantage. It might not be uninteresting to mention that, whilst four patients were inhaling chlorine twice a day, in the summer of 1849, two of them were attacked with cholera, they being the only patients in the hospital that were attacked with it at the time. As chlorine can be smelt exhaling in the breath for hours after the patient has inhaled it, he thought that this occurrence was opposed to the hypothesis that the diffusion of chlorine in the air had the power of limiting or preventing the spread of cholera. It was not his intention to treat of the inhalation of chloroform on the present occasion; but, having been speaking of pulmonary affections, he might state that he had never seen chloroform fail to relieve an attack of spasmodic asthma in any case in which it had been inhaled.—*Medical Times*, January 25, 1851.

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11. *On the Physiological Effects of Picrotoxine, or the Active Principle of Cocculus Indicus.*—A paper on this subject was communicated to the Medical Society of London by Dr. Routh.

The deduction from a number of experiments upon the different classes of vertebrate animals was, that picrotoxine produced symptoms very nearly analogous to those attendant upon hydrophobia.

Exp. 1.—A dose of 20 grains of picrotoxine was given to a dog. After 20 minutes it produced salivation, tremors, succeeded by opisthotonos, convulsions, and great difficulty of breathing, recovery taking place.

Exp. 2.—Thirty grains inserted under the skin of the axilla of a dog. Similar symptoms were produced, and in addition, bloody stools and urine. In three days the dog recovered.

Exp. 3.—40 grains were given to a dog. Retrograde and gyratory movements were produced. Tetanus killed the animal. Post-mortem examination displayed the brain in a state of congestion, particularly at its base, and having much bloody serum in the ventricles. The muscular irritability was destroyed.

Exp. 4.—60, 120, and 100 grains were successively introduced under the skin of a donkey. The two first doses not producing much effect, the third was given, which speedily induced salivation. The animal pawed the ground with his fore feet, ran backwards, and died in a tetanic condition.

Exp. 5.—10 grains were inserted under the skin of a rabbit. In 59 minutes the animal died.

Exp. 6.—4 grains in the axilla killed a pigeon.

Exp. 7.—5 grains given to a frog produced no effect until the expiration of fifteen minutes, at which time he was attacked with opisthotonos.

Exp. 8.—5 grains were thrown into the water in which a gold-fish was placed. The animal became much excited, and leaped from the water two or three times.

The author drew attention to the circumstance of the effects of the poison simulating those produced by the gradual removal of the cerebellum and corpora quadrigemina. and to the fact of an increase in the animal temperature. No coma occurred in any of the above cases.—*London Medical Gazette*, January, 1851.

12. *On Iodognosis.*—M. Dorvault has published a series of researches on the chemical, therapeutical, and medical properties of iodine. To these, as embracing the entire knowledge of all the properties of that substance, he has given the name of iodognosis, *iodognosie* (from ἰώδης and γνῶσις).

We here submit an abstract of the medical portion of these researches, from the *Gazette Médicale de Paris*:—

Iodine, as a therapeutic agent, according to M. Dorvault, is unimportant; it is to its combination as *iodides* that its medical value is due. Even when introduced alone into the system, its therapeutic effects are to be attributed to its combination with the alkalies which exist in the fluids of the body. Under either circumstances the terms *iodic medication* express the same fact. Iodide of potassium is taken by M. Dorvault as the type of iodides.

Physiological Action of Iodides.—Iodides belong to that class of therapeutic agents to which M. Dorvault gives the name of *chemico-catalytic*, and form its most striking representative. This proposition is founded on the following facts: If the animal fluids (blood, lymph, semen, milk), or their proteic elements (albumen, fibrin, casein), be subjected to the action of a solution of iodide of potassium, it will be seen to prevent their coagulation and dissolve them. In producing this effect the salt remains unaltered; it acts, therefore, by virtue of what chemists have called the *catalytic* force. The same may be shown to have obtained when employed in certain pathological cases. The salt may be detected unaltered in the blood or urine, or other secretions.

These facts have been observed by many other investigators, and all have found practically that iodide of potassium promotes secretion, increases the functions of the mucous glands of the alimentary canal, and of the liver, kidneys, skin, pancreas, parotid, &c.

Iodide of potassium is rapidly eliminated from the animal fluids. Dr. Scharlan (of Stettin) found that a patient, to whom he gave 53 grammes daily, eliminated 51 grains by his urine. The five grains lost were accounted for by the elimination of this salt by the saliva, sweat, and tears. Dr. Kramer satisfied himself, from his experiments, that six days sufficed for the complete elimination of this salt after its exhibition during 50 days. The researches of Dr. Marchal, at Vâl de Grace, also prove the rapid passage of iodide of potassium by the urine.

Iodine introduced into the system has been separated by the action of alkalies on the blood.

Special Action of Iodides.—The accidental or consecutive action of iodides has often been mistaken for their primary or efficient action. Some physiologists have considered iodine as a stimulant, others as a contra-stimulant. M. Dorvault observes that neither view expresses the exact truth. He admits a certain degree of general constitutional excitement under its employment; also that, in severe pains of the bones and other tumours, the action of iodine is sedative, by allaying pain. But in both these cases the stimulation and the sedative action are the consequence, not the cause, of the beneficial therapeutic agency of the remedy.

A third opinion, that iodine is alterative, M. Dorvault regards as nearer the true explanation, but as insufficient in fact, as the medicinal influence of the iodides is often seen after the first dose, therein differing from alteratives. M. Dorvault admits, however, the alterative action of some substances in which iodine exists in minute quantities,—*e. g.*, sponge, cod-liver oil, &c.

M. Dorvault also considers the purely chemical theory of the action of iodine as incorrect; his own opinion being, that the medicinal virtue of the iodides consists in their power of dissolving or further liquefying the *humours* of animal bodies, of separating their constituent or proteic elements, and disposing these to the formation of new products, such as coagula, false membranes, and pathological concretions: that the iodine and the potassium united both concur in the production of this result, by a special and peculiar chemico-physiological power which iodides possess of liquefying the fibrine of the blood without destroying the globules; while potash, ammonia, and other substances, dissolve the blood in all its parts.

Therapeutic Action of Iodine. The pathological states in which it is employed.—Goitre, scrofula, syphilis, skin diseases, white swelling, caries of the vertebræ, tabes mesenterica, rickets, phthisis, leucorrhœa, amenorrhœa, and chlorosis, cancer, cachexies, dropsy, poisoning, tumours, rheumatism, various chronic diseases, hypertrophy. These are the forms of disease in which, M. Dorvault observes, the administration of iodine is indicated.—*London Medical Gazette*, January, 1851.

13. *New preparation of Phosphate of Iron.*—Dr. Routh recently exhibited to the Medical Society of London two specimens of phosphate of iron dissolved in metabasic phosphoric acid—one in a solid, the other in a fluid state. The compound was prepared by adding as much phosphate of iron as the metabasic phosphoric acid in a boiling state would take up, and allowing it to cool. The proportions would be found, as nearly as possible, two of acid to one of the phosphate. The solution obtained is of a semi-transparent, greenish or slaty hue. If exposed to the air for a day, it hardened; but mixed with liquorice powder or flour, it could be made up at once into pills. The compound was soluble in any proportion of water, and free from any nauseous, inky taste. Dr. Routh had not analyzed it, and could not assert whether it was simply a solution of the phosphate in the acid, or a new superphosphate that was formed. He had given it largely. It appeared to him to be better adapted for and more speedy in bringing about a cure, than other preparations of iron, in some cases of anæmia and debility, brought on by venereal or other excesses, overstudy, and other depressing diseases; in each there was a prevalence of nervous symptoms, and a large quantity of phosphates voided by the urine. It seemed to act on the same principle as cod-liver oil, i. e., as the latter might be considered to supply the amount of carbon necessary for combustion directly to the lungs, thereby checking the drain upon the system, and allowing it to rally from its hectic state; so he supposed the present remedy supplied directly to the brain the amount of phosphorus necessary, to the undue diminution of which the nervous disorder was probably owing. The medicine did not gripe or constipate. He gave it in doses of j or ij grains three times a day.—*Medical Times*, January 25, 1851.

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

14. *The Chemistry of Tubercle and the Special Pathological Anatomy of Tuberculosis.*—Henry Ancell, Esq., in his interesting lectures on Blood diseases, now in course of publication in the *Medical Times*, makes the following interesting remarks on the chemistry of tubercle, and the special pathological anatomy of tuberculosis:—

"The history of tubercle comprised in my two former lectures contains indubitable proof that this anatomical element of disease is a substance *sui generis*. Its physical, microscopical, and chemical characters show that it differs from every educt or product of nutrition or healthy secretion or excretion, and from all the educts or products, structural or amorphous, of ordinary inflammation. It differs from every other morbid product, non-malignant, malignant, or parasitical. It is essentially neither serum, pus, coagulable lymph, albumen, fibrine, nor any particular texture. At the same time, it is manifestly derived from the blood in an unhealthy condition, and the characters of the product and those of the morbid blood have certain relations which indicate very satisfactorily that the one depends upon the other. The morbid liquor sanguinis, and the deficient and perhaps structurally defective red corpuscles of the blood, are the analogues of the amorphous stroma and defective cells of tubercle; the vitiated albuminous constituent of the plasma is probably the analogue of the caseous constituent of tubercle and even of tuberculous and scrofulous pus; the low vitality of the blood indicated in my diagram is the analogue of the comparatively inorganic quality of the tuberculous product and of the very low degree

of organization which it presents. Organic chemistry has taught us thus much; it remains for new researches to develop the essential character both of the morbid condition of the blood and of its product the liquor tuberculi; the discovery of the one will necessarily comprise that of the other. When treating of the general pathology or theory of the disease, the views which have been entertained of its nature will come under consideration. In the mean time, the analyses recorded in the last lecture suggest a few remarks, and the anatomico-pathological facts connected with the diseased state of the blood and the deposit of tubercle, require to be detailed, since no theory can prove satisfactory which is not consistent with these facts.

"As respects the chemistry. In the first place, although variable, there is a much nearer approach to uniformity in the results than might have been expected. We have to bear in mind the very variable circumstances under which tubercle is deposited in the tissues, and collected by the chemist for examination. Its composition undoubtedly varies according to the length of time it has been deposited and the stage of its development. If we were to admit that it is a definite chemical compound, which is very probable, but by no means proved, and is perhaps incapable of proof or disproof, still this compound must be subject to changes and to admixture with numerous materials, as with those composing the tissues, which, by pressure and otherwise, become disintegrated and blended with the essential constituents of tubercle, or with the products of inflammation, as pus or lymph, from inflammation of the parenchymatous structure of an organ, or with mucus and pus from the mucous membranes, or with blood itself. It is always difficult, and frequently impossible, for the chemist to separate these different products, or to estimate their proportions. Tubercle must also, from the same causes, exhibit differences according to the nature of the tissue in which it is deposited.

"Chemical analysis leaves no doubt that tubercle contains a protein compound as an essential constituent, which appears to bear a close analogy to, if it be not identically, casein. This fact is confirmatory, if not demonstrative, of the view taken throughout these lectures, that it is a secretion from the blood, for all the facts of science contradict the notion, that protein compounds are formed in any of the animal tissues, or are derived by those tissues from any other source than the blood. The caseous quality of tubercle and scrofulous pus indicates the presence of casein in the liquor tuberculi, showing that from the liquor sanguinis of tuberculous blood a caseous blastema is exuded, differing, as respects its caseous quality, from the ordinary healthy blastema. Its caseous quality renders it unfit to nourish the tissues, and gives it a tendency to solidification.

"The existence of pyine, regarded as a tritoxide of protein, detected in particular specimens by various chemists, does not, in my mind, invalidate that of casein. It is manifestly by no means a constant constituent. The question will at once arise, whether a peculiar substance may not be the result of inflammatory action on tuberculous blood resulting in the superoxidation of the protein compounds. In this point of view, pyine would be regarded as an inflammatory product superadded to the essential constituent of tubercle; but the chemistry of the phases and complications of tuberculous development is at present so imperfect, that it is scarcely safe to venture even a conjecture upon such a point.

"One of the most interesting facts in connection with the chemistry of tubercle, is the existence of a large proportion of fatty matter. This is the result of a majority of the analyses, and Rokitanski, Gulliver, and Scherer affirm that this constituent increases from the time that tubercle loses its transparency and as the softening process proceeds.

"A most curious fact also was discovered by M. Guillot, which, if corroborated, might ultimately assist us in arriving at a knowledge of the essential nature of tuberculosis. M. Guillot has ascertained experimentally, that the dried parenchyma of those portions of the lung which in phthisis, as also in pneumonia, have become impermeable to the air, contains a very large proportion of fat. In phthisis as much as 40 and even 52 per cent. of fat is said to have been detected in the desiccated tissue of the diseased part of the lung. It further ap-

pears, that the proportion of fat in the dried parenchyma of the fœtal lung is diminished, after respiration becomes established, from the proportion of ten or 18 per cent. to 6 per cent., and that in all diseases wherein a portion of lung loses its functional powers, an accumulation of fat takes place in that portion.

"Two explanations have been suggested of this increase of fatty matter in tuberculous or non-respirable lung. It has been held, that the materials of respiration being to a certain extent converted into fatty matter in the blood, preparatory to eremacausis, and this eremacausis taking place in part during the passage of the blood through the lungs, an accumulation of fat takes place in consequence of the lung having ceased to perform its function. It has on the other hand been held that tuberculous matter is essentially composed of a large proportion of fat. According to the latter view, the nature of tuberculosis is diametrically opposite to that suggested by some authors—it is a fatty degeneration.* These facts have to be associated with the frequency of a fatty condition of the liver in tuberculosis, as observed by Louis and others, although other results were obtained by the experiments of Regnaud; and with the effects of cod-liver oil in the treatment of tuberculosis. The whole must be comprised in the consideration of the essential nature and theory of the disease. The excess of fatty matter in tubercle is taken by Dr. Madden to imply a retrograde morphology, and this accords with the views of Dr. Addison, to which I have already adverted.

"Tubercle appears also to contain a great excess of extractives, and, as compared with other proteiniform products, an excess of water. These and its other qualities associate the tuberculous deposit with the vitiated state of the liquor sanguinis, which I formerly described as an essential character of tuberculous blood.

"The analysis of cretaceous masses is one of the most interesting, not to say important, parts of the subject. The uniformity of the results, and the analogy to bone-earth and bone, will strike every one. Moreover, it appears that, after the process of softening, if the tendency of the constitutional and local affection is to quiescence and health, and even before softening, if that tendency exist, the aqueous parts of tubercle must be absorbed. Where this tendency to health and restoration occurs, the analyses also prove another most important fact; the crude tuberculous matter which, in its original state, is probably incapable of resorption, must undergo transformations by which it is rendered susceptible of that process. It is only necessary to consider the large proportion of earthy material which remains in cretaceous tubercles, if these cretaceous masses are justly regarded as the remains of tuberculization, in order to admit this. The quantity of earthy matter aggregated in these masses is a most significant fact. Crude tubercle contains but a very small proportion of earthy salts—say one per cent.—whereas these masses frequently contain ten, twenty, and thirty grains. The deposition and resorption of animal matter, leaving earthy particles behind, must have taken place to a very great extent, or for a very considerable period. It appears to me, that where the tendency to cretaceous aggregation has existed in the highest degree, the blood must have wholly or partially lost its tuberculous quality; and that, after having secreted intractable tubercle, owing to this favourable change it pours out a blastema, which, after depositing its earthy salts, is susceptible of resorption, and is actually absorbed, the earthy particles gradually accumulating in the tuberculous cavity. That some such process as this occurs follows from a consideration of the whole series of chemical facts.

"The ultimate analyses and their reduction into formulary have been regarded by some rather as matter of amusement than of utility. I cannot adopt that view. Whatever the defects of organic chemistry at the present moment, I believe it is gradually elevating medicine into a demonstrative science; and I think it is incumbent on us to regard discovered facts in every point of view. Scherer finds, in one point of view, an excess of carbon and hydrogen in tubercle from the liver as compared with that from the lung; and he thinks this may arise from the deposit in the lung being more exposed to the air. Dr. Glover's analyses give to the protein compound of tubercle in general a smaller per centage of azote than those of Scherer.

* Compt. Rendus, Juin 12, 1847, Academy of Sciences.

"When it is considered that the blood of probably one-third of the population of Europe is more or less affected with the tuberculous taint, and tuberculous subjects are exposed, equally with the robust and healthy, to the exciting causes of all those anatomical changes constituting the fatal diseases which cut short the life of man, it will be readily understood that the morbid anatomy of tuberculosis might be made to comprise the whole anatomical catalogue. Accurate observation would no doubt show that all the pathological products of disease are more or less influenced by the tuberculous state of the blood. Without extending their researches thus far, morbid anatomists have ascertained, not only the fact of the deposition of tubercle in the organs and tissues as a peculiar morbid element in the tuberculous subject, but the occurrence of other pathological conditions; and the positive increased frequency of various anatomical changes in connection with this disease of the blood, and of the particular forms and varieties which it presents. No part of scientific medicine perhaps does higher honour to the profession than the genius, and depth and accuracy of research and observation, displayed in the minute investigation of the characters and specialties of morbid structure in this disease, as shown in the works of Baillie, Laennec, Andral, Carswell, Louis, Hasse, Rokitanski, and other pathologists."—*Med. Times*, Nov. 16, 1850.

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15. *On Elastic Fibres found in the Sputa of Phthisis.* By Professor Schroeder Van der Kolk.—The learned Utrecht professor, so well known for his researches into the structure of the lungs, declares that the microscope offers an infallible means of detecting the existence of cavities, by exhibiting in the sputa the presence of the *elastic fibres* which surround the cells of the lungs; and this the more certainly as the cavity is in an early stage of formation, consequently at the very period when such a sign, if to be depended upon, is most wanted. They can be examined under a magnifying power of 200. They are of an arched form, very thin, with sharp borders, and are sometimes covered with fat, which is removable by ether. They must not be mistaken for a species of *conferva*, which very rapidly appears in the expectoration, especially when this contains fat, but which is recognizable by its ramifications terminating in tumefied cells.—*British and Foreign Medico-Chirurgical Review*, January, 1851, from *Rev. Med. Chirurg.* vol. viii. p. 222.

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16. *Is Fibre an Essential Element in the Structure of Cancer?*—Much difference of opinion still exists as to what are the parts of a cancerous growth which are essential to it, and therefore the following observations on the subject by Dr. Redfern (*Monthly Journ. Med. Sci.* December, 1850), are worthy of attention:—

"Professor Bennett states that fibres, cells, and a viscous fluid, are the three essential elements of a cancerous formation. Lebert regards the cancer-cell as the only distinctive, constant, and essential element, the predominance of one or other of the accidental and secondary elements determining the varieties of form and appearance; yet he regards the fibres as next in point of importance and frequency, and speaks of them in encephaloma as pale, fine, and in small quantity. Müller says that the fibres of encephaloma are indistinct, and that the fusiform cells are arrested in their development into fibres:—whilst Vogel states, that in encephaloma fibrous structures are wholly absent. As has been before remarked, it is excessively difficult to state whether the fibres which are found in many tumours are really cancerous, or whether they belong to the proper structure of the organ in which the tumour has been developed; and, consequently, careful examinations of cancerous formations in organs which contain no fibrous tissue in their healthy state, become of extreme importance in leading to a true determination of the mode of development and actual position of the fibrous element in cancer.

"From the examination of the cancer of the brain here recorded, and of numerous cases of encephaloma, I am led to believe that fibres are by no means invariably to be found in such growths, and that their fibrous element is accessory and non-essential. If this be so, the existence of fibrous tissue in most cancerous structures remains to be accounted for in either of two ways—viz., by hypertrophy of the normal fibrous tissue of the part, or by a new develop-

ment of fibre from the recently diffused blastema—a development commenced and completed under the influence of the determining energy exerted by the fibrous tissue of the part itself, agreeably to the law of analogous formations. Presuming that the fibrous element of cancer is developed in either of the methods just indicated, its absence in cancer of the brain is readily accounted for, as in that organ there is no fibrous tissue to acquire an unusual development, or to determine the formation of new tissue of its own kind from cells. *If* proper *cancer cells*, of a fusiform shape, *ever become transformed into fibres*, their presence in cancer of the brain, unaccompanied by the fibrous element, may be owing to a deficiency of the stimulus necessary to insure such development, and may possibly be dependent on the absence of fibres in the original and healthy texture of the organ.

"In conclusion, I would suggest that a carefully conducted statistical inquiry into the relative amounts of the various elements of which cancerous deposits are composed, viewed in connection with the normal structure of the organs in which each one is found, would be of great service in the further examination of this difficult problem, and that it might perchance lead to its satisfactory solution."

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17. *Value of a Chemical and Microscopical Examination of the Urine as a means of Diagnosis in Renal Diseases.*—Dr. Geo. Johnson makes the following just remarks on this subject in an interesting paper in the *London Journal of Medicine* (Feb. 1851):—

"None," he says, "but those who have paid much attention to the diseases of the kidneys, and to the means of distinguishing one form of disease from another, can form an estimate of the true value of the information to be derived from a chemical and microscopical examination of the urine. It may safely be affirmed, that a microscopical examination of the urine is, in general, as necessary for the formation of a correct opinion in cases of renal disease, as a physical examination of the chest is for the exact diagnosis of diseases within that cavity. To determine the true nature of a disease in the kidney, and to form a probably correct judgment as to its course and termination, it is not sufficient merely to ascertain that albumen is present in the urine, that the specific gravity of the secretion is abnormal, and that moulds of the uriniferous tubes may be detected by the microscope. These signs may each and all be present in a given case; but a more precise examination of the circumstances is necessary for the formation of a correct diagnosis. The mere enumeration of these signs, such as is very commonly given in reporting cases of renal disease, will as little enable a practitioner to ascertain the true nature of disease in the kidney, as would a simple report of a patient having cough, with dyspnœa, expectoration, and a sound produced by the mixture of air and liquid in the air-tubes, suffice for the exact diagnosis of disease in the lung. In both instances, the signs must be exactly observed, and correctly reported; otherwise no sound opinion can be based upon them.

"It is well known that diseases of the kidneys are amongst the most frequent of those which destroy life, and that some forms of renal disease are curable, while others are almost certainly fatal. In many of the most obvious circumstances, all the forms of renal disease are alike; and it is only by a careful attention to differences, which, however minute, may yet be readily and certainly appreciated, that we can hope to distinguish one disease from another, or to give a confident opinion as to the probable course and termination of a case.

"The microscopical examination of the urine is much facilitated by placing it in a conical glass, which will contain about three or four ounces. The fluid should be allowed to stand for a few hours before examination. I usually put it in the glasses at night, and examine it with the microscope on the following morning. This delay is not necessary if the sediment is abundant; but in many cases, when the sediment is small in quantity, it is quite essential that time should be allowed for its deposition to take place. A small quantity of the lower part of the liquid should then be removed with a pipette, and placed in a shallow cell for microscopical examination."

18. *Cases of Renal Disease.*—The following cases are related by Dr. George Johnson, *London Journal of Medicine* (Feb. 1851), with a view of elucidating the diagnosis and prognosis of some varieties of renal disease :—

Case I.—*Acute Desquamative Nephritis—Urine very scanty, and highly Albuminous, with Epithelial Casts—Epileptic Convulsions and Coma—Recovery.* I was called to see Ann Fers, æt. 54, as a dispensary patient, on the 6th Dec., 1849. I found her in a state of semi-stupor, and learned that she had been seized with a convulsive fit in the night. She had a wild, distracted look. The tongue was brown and dry. I subsequently learnt that, during the preceding six or seven months, she had lived very badly, in consequence of her husband being out of work. She had gradually become weak; and had restless nights, with frightful dreams, and spectral illusions. About a fortnight before I saw her, she had become much worse, with vomiting, intense headache, slight general dropsical swelling, pain in the back, and very scanty secretion of urine. She was ordered to have six leeches applied to the temples and to take three grains of calomel every four hours.

In the course of the evening some urine was obtained. It had an abundant precipitate of lithic acid, and contained numerous *casts of tubes with entire cells of renal epithelium ;** when boiled, it became almost solid with albumen.

December 7th. In the morning of this day she was much the same. There had been no return of the convulsions; she had the same wild and half-conscious expression of countenance; there was frequent vomiting. Eight ounces of blood were ordered to be taken, by cupping, from the lumbar region: two pills of colocynth and calomel to be taken immediately, and an effervescing draught every four hours.

December 8th. She was better; and said she was much relieved by the cupping; complete consciousness having returned soon after the operation. She had some sleep in the night; but was disturbed by horrid spectral dreams. Bowels freely opened; urine more abundant and clearer; still some vomiting; tongue less dry and cleaner. To take a mixture of sulphate and carbonate of magnesia three times a day.

From this time she steadily and progressively improved. The urine became more abundant; and all cerebral symptoms disappeared.

January 3, 1850. She began to take sulphate of iron with quinine three times a day. At this time the urine had a specific gravity of 1010; it was pale, abundant, contained a very few casts, entangling disintegrated granular particles of epithelium, the casts being of *small size:* albumen was still abundant.

February 4th. The urine had much the same characters. She was still pallid and feeble. The steel and quinine were continued.

March 7th. The quinine was omitted, and the dose of sulphate of iron was increased to two grains, with infusion of quassia, three times a day.

During the month of March she became much stronger, and in every way better. She gained flesh; and her face lost its pallor, and assumed a healthy hue. Towards the end of the month the urine was free from all trace of albumen, and contained no casts, nor renal epithelium. She remained under observation some weeks after this: her health continued good, and her recovery was complete.

Remarks. I reserve my remarks on the diagnosis and prognosis in this case, until I have referred to some other cases, with which it may be compared and contrasted. With reference to treatment, I have found in other cases of acute desquamative inflammation of the kidney, that cupping in the lumbar region has afforded the same immediate relief to the cerebral symptoms which was so striking in this case. There is no remedy in which, under the same alarming circumstances, I have an equal degree of confidence; and I feel assured that the abstraction of a small quantity of blood by cupping, from the region of the kidneys, is much more efficacious in removing cerebral symptoms than any treatment directly applied to the head. In all cases of acute renal disease, whether occurring as a consequence of scarlatina, or from any other cause,

* It is proposed to call casts of this kind "epithelial casts."

when the urine is very scanty, and the patient complains of severe headache and drowsiness, there is much reason to fear that these symptoms may be followed by convulsions and coma; and unless the earlier symptoms are checked by a rigidly low diet, free purging, and the use of diaphoretics, no time should be lost in applying cupping-glasses with the scarificator over the kidneys. The congestion of the renal blood-vessels is by this means lessened, the secretion is quickly increased, and the blood being thus purified, the cerebral symptoms are directly relieved. It must always be borne in mind, that an imperfect elimination of the urine will impoverish the blood more than the abstraction of a moderate quantity from the vessels, and that an attack of convulsions, if it do not end in fatal coma, may produce greater injury in the brain than all the powers of nature or of art can repair.

Case II.—*Occasional attacks of Gout—Chronic Bronchitis—Urine Albuminous, and containing Granular Casts—Death preceded by Convulsions—Chronic Desquamative Nephritis.* Benjamin Hobday, æt. 47, a waiter, with sandy hair and pallid skin, was attended by me as a dispensary patient in January, 1847. Was in the habit of drinking freely, and had several times had gout. About three months before I first saw him his wife had observed that his abdomen became tumid and his face rather puffy; this soon subsided, and there was no subsequent appearance of dropsy.

This present illness began six weeks before I saw him, with cough and mucous expectoration. There was large crepitation over both sides of the chest. He was losing flesh; he always appeared dull and heavy; and his tongue was dry and brown. He took an antimonial mixture without relief. The urine was scanty and high coloured; it contained a small quantity of albumen, and numerous *dark brown casts apparently composed of disintegrated epithelium.** No blood-corpuscles were observed. The specific gravity of the urine was not noted.

January 25th. He had several attacks of convulsion, in the intervals of which he lay muttering and insensible. On the following day he died.

Post-mortem Examination. The brain and its membranes appeared quite healthy. The lungs contained scattered crude tubercles, and were much engorged and carnified. The only organs decidedly diseased were the kidneys; and they presented the characteristic appearances of chronic desquamative nephritis. The cortical substance was wasted, and its surface irregular and granular. Some tubes contained an excess of cells, differing little in appearance from the normal epithelium; while the greater number of the tubes contained the same granular material, which, when washed out, had evidently formed the casts which were observed in the urine during the life of the patient. Other tubes, again, were pale and transparent, being composed only of basement membrane; the epithelial cells, which probably had first become disintegrated, having been washed away by the current of liquid passing through the tubes.

Remarks. The preceding case is an example of the form of renal disease which is very commonly observed in gouty subjects. The blood is contaminated by certain morbid matters, as a consequence of the gouty diathesis; the kidneys make an effort to eliminate these materials; and, in doing so, their secreting cells undergo a modification. They become opaque and granular, then completely disintegrated, and subsequently are washed away, leaving the tubes denuded. After the destruction of the secreting cells, the tubes waste in consequence of the removal of the vital attractive influence of the cells upon the blood.† The cortical substance thus becomes irregularly contracted and granular.

There is one point of view in which it will be instructive to compare the case of Hobday with that of Fers. It might have happened to me to have seen Hobday for the first time as I did Fers, soon after the first attack of convulsions. The question arises—were there any distinctive signs in the two cases which

* The term "granular casts" sufficiently expresses the character of these bodies.

† On this subject see the author's paper "On the Proximate Cause of Albuminous Urine and Dropsy," in volume xxxiii. of the *Medico-Chirurgical Transactions;* also on the "Inflammatory Diseases of the Kidney," in volume xxx.

would have suggested, in the one case, a much more hopeful prognosis than in the other? This is clearly a question of great practical importance, and one, too, which happily admits of a decisive and satisfactory answer. In the case of Fers, the urine contained what I have called "epithelial casts," that is, fibrinous matter entangling *entire epithelial cells;* and these, with albumen, and very commonly blood, in the urine, indicate a recent acute disease in the kidney. In such a case, there is much reason to expect recovery, if we can succeed in warding off the urgent symptoms induced by the poisoned condition of the blood, consequent on the impaired excretory function of the kidney. In the case of Hobday, the appearances were very different. The casts in the urine were composed of *granular particles of disintegrated epithelium.* My observation has taught me to associate this form of cast with a chronic disease in the kidney. Where these casts have been observed in the urine during life, the kidneys will be found after death more or less wasted, sometimes extremely so, and the tubes will be in the condition described in the case of Hobday, some being entirely denuded, and others filled either with disintegrated epithelium, or with cells differing more or less from the normal epithelium. This chronic form of disease may have advanced to the extreme stage of atrophy before the occurrence of any urgent symptoms. Amongst the most common and most serious of its ultimate consequences is an attack of convulsions, recurring more or less frequently. Now, if in a case in which convulsions have once occurred, we find the urine albuminous and containing the "granular casts" described above, we must be prepared for a recurrence of the attacks, and for the probability of a speedily fatal termination.

I must beg my readers to bear in mind, that the preceding remarks relate to cases in which convulsions or coma, or other serious mischief, have resulted from deficient renal excretion, such symptoms affording evidence of extensive disease in the kidney, which, if it have gradually advanced to that degree by a process of chronic inflammation, is but very little under the influence of treatment. The "granular casts," *per se*, indicate merely the *form* of disease, and not the stage of its progress, or the degree of mischief which it has produced. Still the existence of these casts is a very important sign, being present from the very commencement of the chronic desquamative process. They may often be detected before the disease is so far advanced as to render the urine albuminous; and at this early stage of the disease we have most reason to expect that our remedies will be successful. Further, the proportion of this granular material in a given quantity of urine affords an index of the rate at which the disease is progressing. The granular casts are composed of disintegrated epithelial cells, which, being thus shed, appear in most instances not to be reproduced; the greater, therefore, the quantity of this material discharged with the urine, the more rapid must be the destruction of the secreting tissue of the kidney, and the more speedy will be the occurrence of urgent symptoms from suppressed secretion. In the extreme stages of chronic desquamative disease, the granular casts sometimes disappear more or less completely, and are replaced by casts of a very different kind, as will be seen in the history of the succeeding case.

It may be well to remark in this place, that there are at least two circumstances, under which the occurrence of granular casts does not indicate the chronic disease above alluded to. A moderate amount of care will, however, in either case prevent an error of diagnosis. *First*, after an attack of acute desquamative nephritis, it commonly happens that, for some days, while the urine is returning to its normal condition, casts composed of disintegrated epithelium and blood are discharged with the secretion; these gradually diminish in number, and soon entirely disappear. *Secondly*, after an attack of renal hemorrhage, some blood which has remained in the tubes becomes disintegrated and washed out in the form of granular casts, which, however, have generally a yellowish-brown blood-colour, and this would suffice to distinguish them from the epithelial granular casts. In addition to this, the occurrence of hematuria would be almost conclusive evidence of the non-existence of chronic desquamative nephritis, the extremely thickened condition of the blood-vessels

in that disease rendering the occurrence of renal hemorrhage, at least in the advanced stages, a very rare accident.*

In one case of scurvy I observed yellowish-brown granular casts, which I at first supposed to be indicative of chronic desquamative disease, but which I subsequently found to be composed of disintegrated blood-corpuscles and fibrine. The man quickly recovered under the care of Dr. Todd, in King's College Hospital, and in a few days the casts entirely disappeared.

Case III.—*Acute Desquamative Nephritis passing into Chronic Desquamative disease, with granular casts in the Urine, and subsequently a waxy deposit in the Kidney, with "Waxy Cysts" in the Urine—Scanty Secretion—Pericarditis—Pleurisy—Death.* John Revels, aged 30, a labourer, of temperate habits, but much exposed to wet and cold in his work. About seventeen years ago he was ill for a month with dropsy, but recovered completely. His present illness began about seven or eight months ago, after getting wet through while at work, and standing for some hours in his wet clothes. After this he felt "chilly and shivering, and miserable;" the breathing soon became oppressed; and he began to suffer from headache, which had continued until the present time; he had gradually grown pale and weak, and had lost flesh; there had occasionally been slight swelling of the face and hands. He had suffered much from dyspepsia, and once had bleeding from the nose to a considerable extent, since which he had discontinued his work, on account of weakness. He reported of the urine that at the commencement of his illness it was very high coloured—"like porter;" and that it was at the same time scanty; but that it soon recovered its natural appearance, and became more abundant than natural. He had sometimes got up four or five times during the night to pass water, and had passed as much as three quarts in twenty-four hours.

This sequence of phenomena is very commonly observed in cases of acute desquamative nephritis; the urine being at first scanty, and darkly tinged with blood, and shortly afterwards becoming paler and much more abundant than in health. I have suggested an explanation of this abundant secretion of urine in a paper "On the Inflammatory Diseases of the Kidneys," published in volume xxx. of the *Medico-Chirurgical Transactions.*

The preceding narrative brings the history of the patient to the 17th Nov. 1847, when he first came under my observation. It was then noted, that he was of middle height, muscular, but the muscles flabby; hair light; face and lips very pallid. He complained chiefly of weakness and slight headache; his breath was short, on making any exertion; the sounds of the heart were normal. Pulse 88; skin cool; tongue clean; no thirst: appetite good; but he was much distressed by flatulence for about two hours after eating. This is one of the most common and distressing symptoms in cases of chronic renal disease. He passed about four pints of urine in twenty-four hours, of specific gravity 1012. It deposited a rather abundant dense whitish precipitate composed of dark granular casts (probably disintegrated epithelium), with some scattered renal epithelium; there was no blood nor crystals: albumen was present in small quantity. The nature and the amount of the sediment at this time indicated rapidly progressing chronic desquamative disease.

November 20*th.* I admitted him into King's College Hospital, under the care of Dr. Todd. On the 24th and 26th the urine was again examined, with the same result as before.

December 11*th.* The urine had the same characters as before. During the last twenty-four hours he had passed four pints (16 oz.) and 4 oz. He was getting worse; his face was pale and puffed; the countenance was heavy; he complained of weakness and drowsiness, and occasionally vomited after his meals.

December 16*th.* I now first observed what I propose to call the "waxy casts"†

* Upon this point, see the author's paper, before alluded to, in *Med.-Chir. Trans.*, vol. xxxiii.

† The term *waxy* is applicable only to the appearance, and not to the chemical composition of the material, which is probably of a fibrinous or albuminous nature.

in the urine, mixed with the dark granular casts before mentioned. The waxy casts were of a yellowish white colour, very much resembling wax; they had a well-defined outline, and a diameter of about 1-400th or 1-500th of an inch; they did not entangle epithelial cells; but some contained, here and there, a few small nuclei, about the size of blood-corpuscles.

December 20th. The waxy casts were more numerous in proportion to the granular casts. The urine had a specific gravity of 1012; albumen was moderately abundant.

December 27th. The legs were swollen, and pitted on pressure.

January 1st, 1848. He had shortness of breath, and uneasiness about the heart. Pulse 96.

January 4th. The countenance was anxious; a loud double friction sound was heard over the heart. Pulse 120. Respiration 32. He passed less urine, perspired freely, and vomited frequently.

January 5th. Feeling that he was beyond hope of recovery, he insisted on being removed to his own house, where he gradually sank. The urine became very scanty. A catheter was once passed, under the idea that the secretion was retained in the bladder; but scarcely any was found there. At length he became delirious, and died on the 11th January.

Post-mortem Examination two days after death. The body was well formed, and muscular, very little emaciated; the skin was very pallid. The pericardium contained a moderate quantity of serum. The surface of the heart was roughened with recent lymph; the heart was larger than usual; the left ventricle was dilated, and its walls were very thick; the valves were all healthy. There was some lymph on the right pleura, in contact with the pericardium. The lungs were congested, but in other respects healthy.

Kidneys. The cortical substance was thinned and contained a yellowish-white firm, waxy material, which, on the surface, formed projecting granules, varying in size from a pin's head to a large pea. In parts where this material was most abundant, the tissue was anæmic; where it was less abundant, the vessels were congested. On the surface of one kidney there was a cyst, of the size of a large pea. Some of the tubes were crowded with epithelium, some contained granular particles of disintegrated epithelium, others were denuded; and others, again, contained the same wax-like material which had formed the casts already described as existing in the urine. At the same time I noted an appearance of fibrous tissue, which I then supposed to be the result of conversion of the basement membrane of the tubes into fibrous tissue, but which I have since ascertained to be hypertrophied arterial walls. With reference to this point I must again refer to my paper in the thirty-third volume of the *Medico-Chirurgical Transactions.*

Remarks. This case was evidently, at the commencement, one of acute desquamative nephritis. If at this time the patient had been subjected to proper treatment, which would have implied a temporary discontinuance of his work and a strict avoidance of exposure to wet and cold, there is reason to believe that he would soon have been restored to health. The poor man, however, did not apply for assistance until the disease had become chronic, and had advanced beyond the stage at which treatment could be of any avail. The most interesting point in this case is the observation of the first appearance of the "waxy" casts in the urine, their mixture with the granular casts, and subsequently the increased number of the former in proportion to the latter; their appearance in the urine being, doubtless, simultaneous with the deposit of the wax-like material in the kidney, and this material being probably secreted by those tubes which had previously lost their epithelial lining.

The following case, in some points, resembles that of Revels; but in other respects it differs materially. It possesses a peculiar interest.

Case IV.—*Numerous attacks of Gout—Chronic Desquamative Nephritis—Urine Albuminous—A very few Waxy Casts—Almost Complete Suppression—Urinary Tubes denuded—Renal Arteries and Malpighian Capillaries thickened.* Thomas Hewson, æt. 49, a coachman, had always drunk freely of porter—on an average half a gallon daily. At the age of twenty-five, he had inflammation of the chest; and during this attack he was first seized with gout in one great

toe. About three or four years after this, he had a second attack; since which the attacks had returned with increased frequency, and had at different times affected almost every joint. For several years before his death, he was disabled by gout for about nine months in each year; his diet had consequently been very poor. This is one amongst a great number of instances, with which I have met, in which a labouring man has brought upon himself and his family long-continued severe suffering and privation by an intemperate use of London porter. I attended him frequently as a dispensary patient, for attacks of gout, before I had any suspicion of renal disease.

June 7th, 1849. I examined the urine. It had a specific gravity of 1015; it was pale, and deposited a very slight cloud, containing a few well-defined "large waxy casts," similar to those observed in the preceding case, but very much less numerous. Scarcely a particle of renal epithelium could be seen. The urine contained a large quantity of albumen, becoming almost solid when boiled. The patient was of rather small stature; his hair and whiskers were sandy; his face pallid; he was considerably emaciated. During the last two years, the legs had occasionally become œdematous after sitting up; and the face had sometimes been slightly swollen, but there was now no appearance of dropsy. A short time since he had an attack of gout; but he now complained chiefly of weakness, which confined him to bed. The joints were free from deposits and distortions, except a slight contraction of the fingers of one hand. His wife observed that, during the earlier attacks of gout, the urine was generally high-coloured and turbid, but that latterly it had remained pale and free from deposit. He was ordered to take small doses of tincture of sesquichloride of iron.

June 18th and 27th. The urine was examined, with the same results as before.

July 3d. During the last fortnight, he had become deaf. He was much changed in appearance; he sometimes appeared confused in his intellect; the limbs frequently moved in a chorea-like manner. He was very pale and thin, and complained of an acrid taste in the mouth. His breath was fetid; he had occasional bleeding at the nose; there was frequent vomiting. The urine was scanty; the quantity obtained was insufficient for ascertaining its specific gravity; it was highly albuminous, and threw down a rather copious dense precipitate, of a whitish brown colour, composed of numerous *waxy casts varying in diameter from* 1-375 *to* 1-750 *of an inch.* There was no epithelium, either entire or disintegrated. He was ordered to have an effervescing draught every four hours.

July 7th. He was worse; had frequent vomiting and severe headache. He had passed only about two ounces of urine during the last twenty-four hours. It was light coloured, very albuminous, and had a very slight sediment, containing traces of the same casts as before. The effervescing draughts were repeated; and a quarter of a grain of elaterium was prescribed, to be taken immediately.

July 10th. He was much the same. The urine amounted to about four or six ounces in twenty-four hours. Yesterday its specific gravity was 1016; this day it was 1019; it was pale, highly albuminous, and had a very scanty sediment, with traces of the same casts as before.

July 14th. He was much the same, but more exhausted, and very pallid; the skin was cool. He became suddenly faint; and died soon after my visit, retaining his consciousness and power of speech until within a few minutes of his death.

Post-mortem Examination on the fourth day after death. The weather being warm, and putrefaction having commenced, the kidneys were removed by an opening in the abdomen; no other parts were examined. Both kidneys had much the same appearance. Their size was rather less than normal; one weighed 3½ oz. The surface was smooth. In the cortical substance of one, there was a cyst about the size of a horse bean. They were slate-coloured, from incipient decomposition. The chief structural change visible to the naked eye consisted in the absence of the usual lobular appearance on the surface. The cortical substance was rather thin; but an unpracticed observer might have

pronounced the kidneys healthy. On a microscopic examination, the Malpighian bodies appeared very conspicuous, while the tubular structure was confused and indistinct. After the addition of acetic acid, the tubes became much more distinct; many were denuded and atrophied. Scarcely one could be seen with the normal epithelial lining; some contained oil; others, brown granular particles of disintegrated epithelium; and a very few contained the white waxy material, which had formed the casts observed in the urine during life. In consequence of the atrophy of the tubes, the Malpighian bodies seemed relatively more numerous, and closer together than ordinary; they were not perceptibly enlarged; one of the largest measuring 1-75th of an inch. The Malpighian tufts were of a dull white colour: the surface of the vessels was smooth, their coats thickened, their canals clearly visible in many instances, especially after adding acetic acid, which also brought into view the blood-corpuscles in their interior. The coats of the arteries were hypertrophied; and the canal of one contained some small masses of oil.

Remarks. There can be little doubt that the morbid process in the case of Hewson was essentially the same as in that of Revels; and that the urine, if examined at an earlier period of the disease, would have presented the granular casts, which an examination of a great number of cases of this disease has shown to be quite characteristic. In this case the desquamative process had continued until nearly all the tubes had lost their epithelial cells; and, then, as a necessary consequence, secretion was almost completely arrested. There was one remarkable difference between the two cases; the wax-like material, which was deposited so abundantly in the kidneys of Revels, was, in the case of Hewson, only just sufficient to afford the data for a correct diagnosis and prognosis.

Immediately after the case of Hewson, another essentially like it occurred to me in a woman named Brooks. The urine had the same characters, and contained the peculiar large waxy casts. The kidneys presented the same general and microscopical appearances.

When the urine is pale, and of rather low specific gravity, containing a large quantity of albumen, with a scanty sediment, composed of the peculiar large waxy casts, as before described, with little or no epithelium, either entire or disintegrated, it may be almost certainly inferred that the chronic desquamative process has destroyed the secreting cells of the kidney; and that if urgent symptoms of suppressed secretion are not already present, they will very speedily appear.

I have several times spoken of the waxy casts as being "large," and I have given the diameter of those observed in the urine of Hewson. My reason for doing so has been, that as the diameter of these casts was equal to the average diameter of healthy kidney tubes, *their size was sufficient evidence that the tubes in which they had been moulded had no epithelial lining, and were composed only of basement membrane*, as the post-mortem examination of the kidneys proved to be the case.

I will now give the particulars of a case in which what I propose to call "*small* waxy casts" were observed, and which formed the ground of a favourable prognosis, which the result proved to have been correct.

Case V.—*Intemperate Habits, with an insufficiency of Nutritive Food—General Dropsy—Ecthymatous eruption over the body—Urine highly albuminous, and containing "small waxy" Casts—Recovery.* George Henry Lewis, aged 45, of intemperate habits, much reduced in circumstances, and latterly living very badly, was admitted into King's College Hospital, under the care of Dr. Budd, on the 6th June, 1849. He was suffering from general anasarca and ascites in a very great degree, and his body was covered with an ecthymatous eruption. He was very pallid; his breathing was difficult, and accompanied by a wheezing sound. The dropsy had appeared two weeks before, and the eruption a month earlier. The sounds of the heart were normal. The urine was scanty, rather light coloured, somewhat cloudy, of specific gravity 1012, becoming almost solid with albumen when boiled. After standing it deposited a pretty abundant whitish dense precipitate, chiefly composed of *transparent waxy casts, about one-thousandth of an inch in diameter.* Very few epithelial cells were seen, and no blood-corpuscles, or very few.

Few, probably, who saw the miserable condition of this poor man at the time of his admission, would have given a favourable prognosis: but after a microscopical examination of the urine, I ventured to suggest to my friend Dr. Budd the probability of his patient's recovery, for the following reasons. The appearance of the casts seemed to indicate merely congestion of the Malpighian capillaries, and an absence of disease in the epithelial cells. The diameter of the casts proved that they were moulded in canals lined by epithelial cells; in this respect forming an instructive contrast with the casts in Hewson's case. The almost entire absence of epithelial cells from the urine showed that the secreting structures were but little involved; since any morbid matter in the blood, injuriously affecting the secreting cells, would have produced a desquamation of these structures. The inference was that the blood was in such a morbid state as produced congestion of the Malpighian capillaries, while it affected but slightly, if at all, the secreting cells of the kidney. As a consequence of the congestion, coagulable matter with serum escaped from the Malpighian vessels, and, after being moulded in the tubes, was washed out with the urine, forming the "small waxy casts" already described.

He was first put on milk diet, and was ordered to have a tepid bath every morning, and to take small doses of solution of citrate of ammonia, with fifteen minims of ipecacuanha wine every six hours. He began to improve almost immediately. It may be well to mention here, that for several years he had been subject to epileptic fits, which returned with increased frequency while he was suffering from the dropsy.

The urine was frequently examined, and its condition carefully noted. The albumen continued very abundant for about six weeks. The quantity passed in twenty-four hours did not exceed one pint when he was first admitted, but soon became more abundant, and for some days exceeded the normal quantity. Thus, on the 18th June, it measured five pints. In this increased flow of urine, following upon a scanty secretion, the case resembled one of acute desquamative nephritis.

June 25th. It was now first noted that some of the casts entangled a few oil-globules, and here and there appeared a cell containing oil. These appearances continued for about three weeks, and occasioned some anxiety lest the kidneys should undergo fatty degeneration; the more so as the albumen was still very abundant.

About the middle of July, the oil was evidently diminishing, and the casts were less numerous; but the albumen was as copious as at the commencement. The specific gravity of the urine was 1014.

July 26th and 27th. The albumen was reported to be much less, so that there was scarcely more than opalescence when the urine was boiled. The urine was clear; there was no cloud or sediment after standing, nor anything visible by the microscope. In the mean time, the eruption and the dropsy had entirely disappeared, his appetite and strength had returned, and the pallor of his face had been replaced by a healthy hue. Since the 26th June he had been taking steel, sometimes in the form of citrate, and occasionally in that of tincture of the sesquichloride.

July 30th. He was progressing favourably; had improved in all respects. The bowels were regular; the tongue clean; he slept well. The urine was scarcely albuminous.

August 1st. He left the hospital without leave, and has not since been heard of.

Remarks. It is instructive to compare the history of this case with those of Revels and Hewson. In appearance, the condition of Lewis, when he first came under observation, was much more desperate than that of the other two. The microscope was the only means of determining that the probability of recovery in each case was precisely the reverse of that which, to a superficial observer, it might appear to be.

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19. *Diagnosis of Fatty Degeneration of Kidney.*—[Dr. Geo. Johnson makes the following remarks on the Diagnosis of Fatty Degeneration of the Kidney;—one of the most intractable, and unhappily one of the most frequent of the forms of renal disease.]

The urine, in cases of fatty degeneration of the kidney, has characters sufficiently distinctive to render the diagnosis a matter of ease and certainty. It is commonly of a rather pale, yellowish colour. When first passed, it is clear; but, after standing for some hours, it usually deposits a light, cloudy sediment; sometimes, in the early stages, the urine has a dark smoky colour, from containing blood. The quantity secreted is less than normal, and its density in most cases exceeds the healthy standard; it is by no means unusual to find the specific gravity ranging from 1025 to 1030. The albumen is generally very abundant, so that, when boiled, the urine becomes almost solid. On a microscopic examination of the cloudy sediment before mentioned, there may be seen transparent casts of rather small size, in many of which are entangled oil-globules of various sizes, also cells containing oil-globules in greater or less abundance. There are besides scattered cells, more or less completely filled with oil. I might transcribe from the pages of my note-book many cases, in which the urine has presented more or less of the characters here described, and in which not one of the patients has recovered. The majority of these cases have terminated fatally; while, in a few instances, the symptoms continue in a greater or less degree; the urine continuing highly albuminous, and presenting unequivocal microscopical evidence of the true nature of the disease. For the purposes of prognosis, it is as important to distinguish between a case in which the urine presents the characters here described, and a case of simple desquamative nephritis, as it is to distinguish tubercular disease of the lung from acute pneumonia or bronchitis.

Now, since the prognosis in a case of confirmed fatty disease of the kidney is thus unfavourable, it is important that all who examine the matter should clearly understand that albuminous urine may contain a certain amount of oil, entangled in fibrinous casts, or enclosed in epithelial cells; and yet the disease may be of a simple nature, and may speedily terminate in recovery. It is very common to find small quantities of oil in the casts and in the cells, after a simple inflammation of the kidney has existed for three or four weeks. Now, since an inflammatory disease does in some instances become chronic, and terminate in confirmed fatty degeneration, the appearance of any oil in the urine must occasion a certain degree of anxiety, lest it should increase in quantity, and take the place of the simple inflammatory products. In the case of Jervis, it will be remembered that oil was seen in the casts and in cells, that it continued for several days, and then entirely disappeared simultaneously with a rapid decrease in the quantity of albumen. The following brief notice of a case will serve as an example of what may frequently be observed.

Acute Desquamative Nephritis, with general Dropsy—Urine scanty, highly albuminous, and containing fibrinous Casts, Epithelium, and Blood—subsequently oil in the Casts and Cells—Complete Recovery. John St. Ledger, aged 49, a billiard-marker, applied to me at the Dispensary on the 12th April, 1847, and gave the following account of himself. During the period of Lent, he had fasted very rigidly, *i. e.* during four days in the week he took only one meal a day, composed of fish, with milk and potatoes; during the remaining three days he took animal food as usual, perhaps rather in excess. Under this plan of diet he found himself getting thin and weak, and he became very dyspeptic and flatulent after his meals. On Easter Monday, April 5th, he felt drowsy, and had muscular pains. The next day, dropsical swelling appeared, and the urine was very scanty. He continued to get worse until the 12th April, when he first came under my notice.

There was then slight general dropsy, headache, and drowsiness; the urine was scanty, high-coloured, and very albuminous. It presented the characteristic appearances of simple acute desquamative nephritis; containing fibrinous casts, entire epithelial cells, and blood-corpuscles. During the first few days he was much benefited by cupping, warm baths, purging, and diaphoretics.

A careful microscopical examination of the urine was made almost daily. Its characters remained the same until the 29th April, when, for the first time, it was seen that many of the epithelial cells contained oil-globules. At that time, I knew much less of the history of this disease than I now do; and I quite despaired of my patient's recovery. Day after day the oil was visible, some cells

being completely filled with it; but, at the same time, *by far the greater number of cells were entirely free from oil*, and this is the circumstance which, with my present knowledge of these cases, would have suggested to me a favourable prognosis. Early in the month of May the dropsy disappeared, but the patient continued very weak and pallid.

May 6th. He began to take a draught three times daily, consisting of diluted nitric and diluted hydrochloric acids, ten minims of each, in infusion of quassia.

May 31st. The above medicine was discontinued, and he took an ounce of compound mixture of iron three times daily. Soon after the change of medicine, he began to gain strength, and to improve, in every way, very rapidly.

June 14th. The quantity of urine was three pints in twenty-four hours; of specific gravity 1017; the colour was natural, the albumen much diminished. It contained a few casts, with epithelium more or less disintegrated, and scarcely a trace of oil.

At the beginning of July, the urine was free from albumen, and presented no trace of oil, but a very few casts with disintegrated epithelium; he was gaining strength, and was much improved in appearance. Once after this, there was a temporary return of albumen, but it soon disappeared, and he completely regained his health and strength. He has occasionally since been under my care for trifling ailments; I have several times examined the urine, and have found it, in every respect, quite healthy.—*Lond. Journ. Med.*, Feb. 1851.

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20. *On a Species of Atrophy of the Spinal Marrow.* By Dr. Namias.—A woman, æt. 48, was admitted into the Venice hospital, who had suffered from paralysis of the lower extremities during three years, of the origin of which she could give no account. She possessed no voluntary power over them, and the upper extremities were also in a state of semi-paralysis and constant flexure. She was submitted to electricity during three months, and recovered power sufficient to enable her to walk slowly about the ward, the flexure of her fingers continuing. Some months after, her power again declined, but she was again improving under the use of electricity, when she was eventually carried off by diarrhœa in the cholera season.

At the *post-mortem* examination, the spinal marrow was found flaccid; and hollowed out in its substance was a cavity extending from the first cervical vertebra to within two fingers' breadth of the *cauda equina*. A catheter of medium size could enter this cavity, which occupied the centre of the medullary cord, the absence of the central gray matter giving rise to its production. Cruveilhier has noticed this absence of gray matter in children dying with spina bifida; and Morgagni relates the case of an adult, in which the cavity was large enough to admit the end of the little finger, but extended for a far less distance than in the present case.

Dr. Giacinto Namias observes, in reference to the improvement of the paralyzed limbs which resulted from the use of *electricity* in this case, that it is only one out of many examples of such improvement being produced even in cases wherein serious organic lesion existed; so much so, that by its patient and *prolonged* employment, voluntary movement has often been procured in cases in which the causes of the paralysis were absolutely irremediable.—*Rev. Med.-Chir.*, viii. p. 133.

The important resources derivable from the persevering use of galvanism, in cases of paralysis which have resisted all other means, have been frequently demonstrated by M. Duchenne, who, having had the principal hospitals of Paris freely thrown open to him during the last five or six years, has acquired a remarkable dexterity in its application. As he is about to publish a work upon the subject, detailing the results he has attained in respect to the diagnosis and treatment of the different forms of paralysis, we will only state here, that his plan consists in *localizing* the galvanic action upon the different muscles, which, by the employment of moistened excitors of a great variety of form and size, he believes he can do with the greatest nicety. He has derived few satisfactory results from *indirect muscular galvanization*, or acting upon the muscles through their nervous trunks. When he wishes to localize galvanic action upon the *skin*, he previously dries it with an absorbent powder, and passes over

the surface dry metallic excitors, the sole result being the various degrees of sensation according to the intensity of the currents and duration of the intermissions.—*British and Foreign Medico-Chirurgical Review*, January, 1851, from *Archiv. Générales*, tom. xxiii. p. 420.

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21. *Vaccination as a Preventive of Small-pox.*—Dr. Alexander Knox concludes a highly interesting paper on the existing state of our knowledge of vaccination and revaccination as preventive of small-pox (*Lond. Journ. Med.*, Dec. 1850), with the following practical deductions, suggested by a careful reconsideration of the subject, and which are well calculated to reassure confidence in the protective influence of cow-pox.

"1. It appears to have been satisfactorily demonstrated, that secondary vaccinations have succeeded in a considerable proportion of the cases in which they have been resorted to.

2. It also appears that small-pox has prevailed of late years to an increased extent.

3. The results in question have been attributed, partly to a diminution of energy in the vaccine infection, caused by repeated transmission through the human subject, and partly to the alleged tendency of the immunity conferred by cow-pock, to wear out of the system, after an uncertain period from the date of vaccination.

4. Both the success of revaccination, and the increased prevalence of casual small-pox, appear, however, to have been exaggerated in the popular belief; and, at any rate, the facts seem explicable, in a great measure, without resorting to the hypothesis just stated, by attributing them in part to the imperfect performance, or the entire neglect of vaccination; in part to the temporary tendency to increased diffusion, at distant and uncertain periods of time, which characterizes all epidemic diseases; and, finally, to peculiarities of constitution, which render many individuals absolutely insusceptible of being protected against a secondary attack, either by vaccination or by inoculated or natural small-pox.

5. It has been proposed to re-introduce variolous inoculation as a certain remedy for the occasional failure of vaccination; but the superior efficacy of the practice is not only questionable, but its indiscriminate employment has been proved to be dangerous, and destructive of human life, and is therefore highly to be deprecated.

6. Revaccination, however, may be prudently recommended, not only as innocuous in itself, but also, on various grounds, as positively advantageous, even by those who question the gradual extinction of the protective influence of cow-pock.

7. It does not appear that genuine vaccination has lost any of the efficacy which at any time really appertained to it; and it still remains to be demonstrated that it is not capable of conferring, to the end of life, complete immunity from the horrors of small-pox, on a large majority of all the individuals fully submitted to its influence.

8. Even where vaccination fails to prevent a secondary attack, the consecutive disease, in general, assumes a mild and modified form, although, in some instances, it may be sufficiently severe to leave the countenance marked with scars, and still more rarely to terminate in death: but fatal cases from secondary small-pox do not seem to be more frequent after vaccination than after a primary attack of the natural disease.

9. On the whole, it is respectfully maintained that cow-pock, imparted in the most efficient manner of which it is capable, by vaccination, and, under certain circumstances, by revaccination, is the most eligible safeguard within our power against small-pox; and that it will prove effectual in most constitutions, not inherently insusceptible of protection, by any means whatever."

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22. *On Vaccination and Revaccination.* By M. Craninx.—An interesting discussion has lately taken place, at the Belgian Academy of Medicine, upon the subject of vaccination. The following were the conclusions of M. Craninx, the reporter, which were affirmed by the academy: 1. Variola and varioloid

are but degrees of the same affection. 2. Simple variola may attack the same individual twice, but scarcely ever in rapid succession (*coup sur coup*). 3. It may also attack persons who have been properly vaccinated, but it is then generally mitigated. (M. Lombard observed that the word "generally" must be dwelt upon; for subjects who, to all appearance, have been well vaccinated, at a distant period occasionally die from variola. He added, that in the dreadful epidemic which has just devastated Liege, this was the case, while none of those who underwent revaccination took the disease.) 4. Variola, after vaccination, is almost without example within the next ten years; but it is observed from time to time in those who have been vaccinated for more than twenty years. It is, however, very rare after forty. 5. It is of more frequent occurrence, but, at the same time, milder, in the vaccinated, than in persons who have already undergone an attack of it. 6. Varioloid is observed oftener than variola after vaccination, and is not unfrequently observed in children; but it increases both in frequency and severity from ten to twenty-five or thirty years. 7. Variola and varioloid in the vaccinated, not following the same course in respect to frequency or intensity as in the non-vaccinated, the cases in which they are seen among the former cannot all be explained upon the supposition of a faulty vaccination, but upon that of a diminution of the preservative action of vaccination. 8. Perhaps we should admit incomplete vaccinations possessed of a less degree of preservative power, and capable of becoming sooner exhausted. In this point of view, sufficient importance is not attached to the general reaction which should accompany the vaccine eruption, indicating the action of the virus upon the general economy. 9. If the protective power of vaccination has become enfeebled by time, if not in all, at least in several individuals, there is not sufficient evidence to show that the vaccine, considered in itself, has lost its efficacy since the first years of its discovery. While there is doubt, it is better to revert to the cow-pox whenever the opportunity presents itself. (Upon this resolution, M. Seutin remarked that, believing as he did, that the vaccine lymph which existed is efficient, and that it fails either from not having been taken well, or owing to individual susceptibilities, he considered this conclusion would spread needless alarm. M. Lombard observed, however, that the new cow-pox, recently imported from England, certainly exhibited a more certain and more active effect.) 10. As the immunity conferred by vaccination is not indefinitely absolute, revaccination, at least for a great number of individuals, is rationally indicated. 11. Observation shows, that when it succeeds, the second vaccination produces phenomena very nearly like the first, so that we would, *à priori*, anticipate the same effects from it. 12. Experience has determined this point: it has proved that a recent revaccination preserves from variola and varioloid, and that, practiced on a sufficient scale, conjointly with vaccination, it constitutes a sure means of arresting the progress of this malady when it appears epidemically. 13. It succeeds best in proportion as it is most required, that is, the more remote the period is since the individual has had variola, or has been vaccinated. 14. If it does not succeed at a first attempt, it should, if necessary, be repeated several times. 15. During the prevalence of an epidemic of variola or varioloid, it is prudent to revaccinate all those whose first vaccination dates ten years back, and all those whose first vaccination gives rise to any doubt. 16. Revaccination may be performed almost indifferently with the lymph of a primary or a secondary vaccination. 17. It is imprudent to inoculate with the lymph of spontaneous varioloid; nevertheless, in the time of an epidemic, if vaccine lymph could not be possibly obtained, we should be authorized in the employment of this fluid, and to transmit it as we do vaccine lymph. 18. If revaccination is so useful a thing, at least for a certain number of persons, vaccination loses none of its importance; and the government and the profession should exert all their influence to enable the entire population to participate in its benefits.—*Gazette Médicale de Paris*, No. 27.

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23. *Results of Revaccination in the Prussian Army during* 1849.—During the year 1849, there were 51,637 individuals revaccinated, of whom 39,116 had

distinct cicatrices of the former vaccination, 8706 had these in an imperfect condition, and 3815 were destitute of them. The vaccination

Pursued a regular course in	30,457
An irregular one in	8,467
And failed in	12,713
Succeeded on repetition in	2,862

Thus, then, of the 51,637 vaccinations, 33,319 were quite successful; vesicles running a normal course being produced. This proportion, amounting to 64 per cent., is nearly 1 per cent. more than was obtained in 1847 and 1848.

Of the different forms of variolous disease which appeared in the army throughout 1849, only 62 cases occurred, and were distributed as follows:—

	In persons not revaccinated.	Revaccinated without success.	Revaccinated with success.	Total.
Varicella	2	6	5	13
Varioloid	14	17	9	40
Variola.....	6	2	1	9
	22	25	15	62

In almost every case the disease ran a mild course, and frequently was quite insignificant. One case only was fatal. A recruit vaccinated when a child had not yet been revaccinated, and died on the 10th day.—*British and Foreign Medico-Chirurgical Review*, January, 1851, from *Med. Zeitung*, 1850, No. 19.

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24. *Abortive Treatment of Variola by the Application of Collodion.*—Collodion has been found useful in arresting the course of traumatic erysipelas and of herpes: and the *Bulletin Général de Thérapeutique* for Oct. 30, 1850, contains an account of a case occurring in the practice of M. Aran, which seems to show it to be an efficient agent in producing abortion of the variolous pustules. We abridge the account given.

Case. A young man, aged 19, was admitted into the Hôpital Bon-Secours, in Paris, with confluent small-pox in an early stage. The face was thickly covered with small pustules, and there was already intense swelling and redness. The fever was very moderate. M. Aran applied a layer of collodion over the face, to produce abortion of the pustules. In two days, the lips, and lobes of the ear, which had not been covered, showed well-developed pustules; while scarcely anything could be seen through the collodion, and, on raising it, the pustules were found arrested. The collodion having become accidentally removed in parts, the exposed portions of the face, in fifteen or eighteen hours, presented well-developed pustules. It was again applied, and constantly watched, to prevent the patient from tearing it off during his delirium. On the eighth or ninth day from the first application of the collodion, it began to fall from the eyebrows, leaving them of a rose colour, without any scars. On the following days, the collodion fell from the other parts of the face, together with the desquamated epidermis. The skin of the face appeared as if it had undergone desquamation after erysipelas. On the other parts of the body, the eruption, which had been very confluent, had left numerous spots and scars. The general condition of the patient was most satisfactory.

Collodion seems to act as a mechanical constringent of the tissues. This view is supported by the fact that, in the latter days of the suppurative stage, the pustules were seen to appear at the edges of the layer, and to raise it, while nothing of the kind was observed elsewhere. M. Valleix has also used the same remedy in a case of *variola discreta*, with perfect success; and in a case of non-confluent small-pox, M. Aran has procured the abortion of almost all the pustules on the face, so as to render it extremely difficult to find a mark.—*London Journ. Med.*, Jan. 1851.

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25. *Combination of Auscultation and Percussion.*—Dr. Roger has called attention to a process, first pointed out by Laennec, in which percussion and auscultation are combined. A solid cylinder of cedar-wood is used for auscultation, while a person well versed in percussion practices it round the stethoscope,

and in the entire extent of the region to be explored. In this manner, we can not only determine the limits of an organ, as of the heart, liver, spleen, or veins, but also those of the cavity which contains any of them.

This process, though possessing incontestable advantages, is opposed by two serious inconveniences. The first is, the dexterity required to enable us to appreciate the result. M. Roger was six weeks in acquiring this power. The other objection is, the difficulty of introducing into private practice, especially in the country, a process which requires the aid of a second person. The method, however, would be valuable in cases of difficult diagnosis, and in which great precision is required in determining the therapeutic indications. —*London Journ. Med.*, Dec. 1850, from *Comptes-Rendus de la Soc. Méd. des Hôpitaux*, April, 1850.

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26. *On Auscultation in the Pneumonia of Infants.* By MM. Trousseau and Lasègue.—The authors preface their essay by some observations upon auscultation of infants in general, which they consider to be far more difficult than is usually supposed. The restlessness and cries of the child confuse the results; and the small space to be operated upon, with the inconvenient position to be assumed, prevents the prolonged examination which is necessary. When we are in no doubt as to the nature of the disease, its limits often cannot be ascertained, for an abnormal sound, whensoever it may arise, is heard all over the chest. Both normal and abnormal sounds are, therefore, best heard where the ear can be most conveniently placed, namely, *opposite the subscapulary fossa*. From the *resonance* of the cry little is to be learned, and the *souffle* of the child is indistinct. The comparative exaggeration and feebleness of the respiration in different parts of the chest are seldom to be observed, and the exaggerated sound of one lung when the other is bad—puerile respiration—is comparatively wanting in the child. Most is to be learned from the *râles*. The *crepitant* is very rare, and has not the fineness or the dryness of that of the adult, the *subcrepitant* and *sibilant* being those usually present. Their temporary absence does not indicate the absence of lesions, for the subcrepitant *râle* may cease for minutes or even hours, and return again, no apparent cause for the oscillations being observable.

The pneumonia of infants is never an original affection, being always preceded for a longer or shorter time by bronchitis; and it is very important to seize the point of transition of the one into the other, as the implication of the parenchyma so much adds to the danger. Bronchitis may exist only for a short time, or for months, before being followed by pneumonia. Indeed, there are two forms of it; one in which *pneumonia necessarily follows*, and the other in which it is a mere *coincidence*. In the first case, there is much more fever present than the local symptoms seem to warrant, and the cough is dry without *râle*, the first sound that is heard being the subcrepitant *râle* of the pneumonia, two or three days after the bronchitis has existed. In the other case, the catarrh passes through its usual stages, having the large mucous or sibilant *râles* present, the subcrepitant *râle* appearing suddenly among these, and not the one gradually becoming fused into the other. In general, the sibilant *râle* gives way to a mucous one of short duration, prior to the occurrence of the subcrepitant rhonchus. Whenever bronchitis, characterized by cough and fever, does not manifest its auscultatory signs, pneumonia is imminent; but when mucous or sibilant *râles* have been heard for some time, the subcrepitant *râle*, when it occurs, has no longer the same importance. Sometimes, indeed, the subcrepitant *râle* is never present, the *souffle* alternating with the mucous. In other cases it may accompany the disease in all its stages; and in some that run a rapid course, especially in rickety children, the disease may terminate fatally without any other having become developed. Whenever it ceases completely, without being replaced by any other form of rhonchus, the general symptoms still continuing menacing, the augury is very bad. If, on the other hand, it persists, though the respiration be easier, the fever less intense, and the countenance less anxious, the amelioration cannot be relied on, for it is only a truce. This *râle* is larger, the more superficially the affected lobules are situated, and is smaller when they are more central. When the hepatized

tissue is found highly coloured, it has persisted to the last; but when this is pale, it has usually given way, prior to death, to other signs. It is no measure of the more or less advanced stage of the lesion.

The *souffle* in hepatization, at first soft and veiled, becomes eventually almost as distinct as in the adult, being either accompanied by the subcrepitant *râle*, or alternating with it. It may disappear for short intervals, and undergoes some change from posture. It is one of the most certain signs of the disease, and if the patient dies without its being developed, this is because his prior state of health or some other general accident has complicated the case. It indicates that hepatization occupies an extensive portion of the parenchyma; and by practice its intensity becomes a measure of this. Neither it nor the subcrepitant *râle* indicates the degree of the change, though they may its extension—different parts of the lungs, in fact, undergoing simultaneously a very different degree of change. The *souffle* appears early in that form of the disease in which contiguous inflamed lobules unite and invade a whole lobe or contiguous lobes; while in the form in which the hepatized lobules are dispersed over almost the entire lung, so as to unite nowhere into such large masses, although constituting a great aggregate, the *souffle* appears later.

As in the adult the sign of improvement is a returning crepitation, so is the returning mucous *râle* in the infant, displacing the *souffle* and subcrepitant *râle*, though it may reappear without the intervention of this last.

All the auscultatory phenomena are never entirely wanting during the whole course of the disease, but any one of them may be so, even in cases of such severity as to lead to the full expectation of their presence.—*British and Foreign Medico-Chirurgical Review*, January, 1850, from *Archiv. Générales*, t. xxiv. pp. 130-42.

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27. *Local Paralysis in Infancy.*—Dr. Simpson called the attention of the Edinburgh Obstetrical Society to the frequency of local paralytic attacks during infancy and childhood, and pointed out the following circumstances as the most important points in their history:—

1. The paralysis most frequently seems to affect a single limb—as one leg or one arm—sometimes a few fingers only; occasionally it appears in the form of hemiplegia, affecting one whole side; sometimes in the form of paraplegia. Dr. S. mentioned a case in which the paralysis occurred in early infancy, and affected both lower extremities, the left upper extremity, and the left side of the face, the child, now several years old, being very acute and intelligent. 2. The side of the face, but more particularly the upper and lower extremity, when paralyzed in infancy, do not grow in relative proportion with the corresponding healthy parts; so that, when the individuals affected reach adult life, the paralyzed extremity appears small, diminutive, and shorter than natural. 3. The paralyzed limb does not appear to want sensation, and the motory muscular power, although greatly diminished, is not entirely abolished. When the local paralysis is seated in the leg, the person hence usually walks imperfectly, throwing out the foot at each step with a flap-like motion, and often with the toes or external surface of the foot somewhat drawn in, as the leg is each time extended. 4. The disease generally comes on during the first three years of life, and especially during the currency of that morbidly irritable state of the nervous system which co-exists with teething. Dr. S. had seen an instance in which two children of the same family were affected within a week of each other. 5. The disease generally supervenes very suddenly, sometimes in the course of a single night, and is often, at the time of the attack, accompanied with little or no constitutional derangement; but occasionally it comes on with a fit of convulsions or other symptoms of some temporary cerebral derangement. 6. The affection is frequently first noticed immediately after fever, especially after the eruptive fevers; and occasionally it comes on during the period of convalescence from them. Dr. S. described a case of paraplegia in a child three years old, which came on during the convalescence from scarlatina—the patient going to bed apparently well, and waking paraplegic, and astonished at her own want of power of movement in both her legs. Intestinal irritation in some cases appears to be the exciting cause. 7. When the patients do not recover from

the paralysis within a few days after the attack, under antiphlogistic measures (when the state of the system has allowed them), and careful correction of the condition of the intestinal canal and other functions, the paralytic affection almost always proves chronic, and, indeed, permanent. Dr. S. had seen counter-irritation to the spine, galvanism, &c. &c., employed, but without success. He had seen three instances in which small and long-continued doses of nux vomica had appeared to act beneficially in diminishing the state of paralysis. Keeping all the functions of the body as near the standard of health as might be, friction and bathing of the affected limbs, and inculcating as much muscular exercise of them as possible, seemed to be the principal indications of treatment, when the disease had already passed into the chronic type. 8. The true pathology of the disease was as yet little known, though the affection was of frequent occurrence. No autopsic investigations appear to have been made with the view of ascertaining the state of the brain, spinal cord, and nerves, in the local paralysis of infancy.—*Monthly Journal of Medical Sciences*, Jan. 1851.

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28. *Recent Epidemic of Scarlatina at Berlin.*—Dr. Helfft states that the scarlatina which has lately prevailed epidemically in Prussia, and other parts of Germany, has presented several anomalous features, which he deems it his duty to lay before the profession.

In many cases all the symptoms of scarlatina except the eruption were noticed in members of the same families among whom the fully developed disease was present.

In very many patients the disease assumed a malignant character; and here the surface was pale, or the skin presented a dark purple colour, and in others was studded with petechiæ. In these cases the temperature of the surface of the body was much lower than natural. The pulse was small, frequent, and sometimes intermittent. The fauces were of a dark red colour. The tonsils presented deep ulceration, by which they were partially or totally destroyed. Diphtherite was frequently observed, spreading over the upper part of the pharynx and the fauces, extending to the Eustachian tube and the posterior nares, and accompanied by a copious acrid and fetid discharge from the mouth and nostrils. The tongue, at first of a dark red colour, its papillæ enlarged, soon became covered with black sordes, which also coated the lips. The lymphatic glands in various regions of the body were swollen and inflamed; those of the neck were swollen in every case; and sometimes the inflammation of these glands proceeded to suppuration and wide-spreading ulceration, extending into the pharynx and adjoining parts. Inflammation of the conjunctiva, with ulceration of the cornea, was noticed in some cases. Œdema of the integuments and effusion into the cavities were seldom met with. In one case hemorrhage from the nose, mouth, and intestinal canal occurred; and in all the worst cases the evacuations were of a black or dark green colour. The urinary secretion was suppressed in the beginning of almost every case; towards the close, however, it passed involuntarily. In one case, in which after death distinct degeneration of the kidneys was found, no albumen could be detected in the pale and copious urine; its sp. gr. was 1010.

The kidneys in almost every case were found enlarged, or acutely inflamed; but the granular or Bright's disease was not observed. The liver was paler than natural. In one case the spleen was observed of a yellowish colour, and infiltrated with pus. In another case, attended with swelling of the upper extremities, the glands of the axilla were found enlarged and containing pus. The lungs were free from disease. The pleuræ presented ecchymoses. Various pathological changes were found in the intestinal canal, *e. g.*, softening of the mucous membrane, ulceration of the mucous membrane of the ileum, paleness of the membrane in other portions of the intestines. In most cases the ileum and colon were of a dark colour, varying through several shades, from green to deep black.

The treatment, at first of a tonic character, was not successful; a change to small doses of calomel, as advised by some English authors, was found very serviceable. Subsequently when hemorrhages occurred, bark and acids were

employed. Nitrate of silver was applied to the local diseases.—*London Med. Gaz.*, Dec. 1850, *Zeitschrift für die Gesammte Medicin.*

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29. *Cretinism.*—A recent communication on this subject by M. Boudin, founded on the report of the Sardinian Commissioners, is published in the *Archives Générales*, September, 1850. This commission defines cretinism to be "a degeneration of the human species, which manifests itself in different parts of the globe, and characterized by idiocy, more or less pronounced, associated with malformation of the body." It has been observed in Europe in the Alps, the Pyrenees, the Jura, the Hartz, and the Carpathians; in America, in the Cordilleras; in Asia, in the Himalayas; and in the mountainous districts of Tartary.

Sometimes the affection appears at birth, but generally no sign of the cretin appears till subsequently. The stature is seldom over four feet, many do not surpass three feet six. They are generally thin, with tawny skin, and a countenance expressive of a brutal deficiency of intelligence. The head is misshapen and out of proportion; the muscular strength is below par; the articulation imperfect. The cretin has few diseases; pellagra is, however, not unfrequent in the valley of the Po.

As far as the commission could gain information season had no influence on the propagation of cretins. Other statistical facts, of more or less interest, are as follows:—

Cretinism declared itself—

Between birth and the age of		2	years	in	4,440
"	2	"	5	"	187
"	5	"	12	"	202
"	12	"	20	"	31
Above	20	"	—	"	28

In goitrous cretins, the goitre commenced—

Between birth and the age of		2	years	in	2,333
"	2	"	5	"	199
"	5	"	12	"	419
"	12	"	20	"	31
Above	20	"	—	"	28
Age not specified		"	—	"	711
					3,912

In analyzing these and other tables, the commission have ascertained that hereditary influence is not powerful in the production of cretinism, as out of 8,000 families of cretins, not more than 300 parents were the subject of the malady.

In reference to the locality, the commission have established that deep, narrow, and tortuous valleys abound the most with cretins, and that the villages in which they reside are remarkable for the abundance of stagnant water. They have also made out that the water is highly charged with lime, and deficient in iodine and bromine.

The commission have determined that the eradication of cretinism is best effected by the following hygienic precautions: To drain the valleys; to cut down unnecessary trees, so as to allow a free circulation of air; to furnish a purer water; to insist upon houses being built on sanitary principles. To encourage a meat diet, and the liberal use of salt; to prevent, as far as possible, the marriages of cretins, scrofulous and rickety persons.—*Provincial Med. and Surg. Journ.*, Jan. 22.

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30. *Causes and Cure of Goitre.*—The number of persons affected with goitre in France amounts to about four hundred and fifty thousand; the number of cretins is little less than thirty-five thousand to forty thousand. As there can be no reasonable doubt that both affections depend upon circumstances capable of being modified by hygiene, the French Government, following the laudable example of the Sardinian authorities, have appointed a commission to inquire

into the causes which may give rise to goitre, and into the best means of preventing or curing this unsightly disease. The following *resumé* of the opinions entertained by the commission may be useful to place on record, although it would seem that they have been rather exclusive in attributing the development of the malady to a single cause.

The first care of the commission was to construct a geographical map of goitre: to study the nature of the soils in which the disease is endemic; and to analyze the food, drink, &c., of such localities as compared with the aliments in neighbouring districts free from the complaint.

"It was soon ascertained that the existence of goitre bore no relation whatever to latitude, climate, elevation of residence, poverty, or other depressing causes; but the chemical examination of the fluids employed as drink lead to a remarkable conclusion. It is this: 'that goitre depends on the presence of magnesia in the food or drink, joined with the absence of a sufficient quantity of iodine to serve as an antidote.' These two conditions are essential for the development of the disease.

A mere inspection of the maps of localities affected with goitre, and of geological maps, suffices to prove that the disease prevails endemically in magnesian formations. This fact is admitted by the most distinguished geologists —M. Elie de Beaumont, in France; M. Studer, in Switzerland; M. de Sismonda, in Piedmont. In every locality in which goitre prevailed as an endemic disease, the commission found a notable quantity of magnesia in the substances used for food or drink. In certain localities infested by the disease, although the formation is not magnesian, a large proportion of magnesia was found in the water drawn from the wells, as at Neris and Landisay.

This general fact is further corroborated by others of a particular kind. In the goitre countries it is a common habit for young men, who desire to escape serving in the army, to drink several pints of a certain kind of water daily; they soon become attacked by the disease and escape the conscription. Now, these waters are strongly charged with magnesia. On the other hand, families, which take care to drink no other fluid than rain water, invariably escape; and it is well known that the water derived from the icebergs never gives goitre.

This latter fact has been applied in practice with the best effects. Many localities have been completely relieved from the disease by substituting the use of rain water for well-water. In the town of Montmeillan, for example, goitre has almost completely disappeared since the inhabitants have been induced to drink nothing but rain water.

A second important point established by the French Commission is, that a small portion of iodine, if taken daily with the food, acts as a preservative against goitre. Common sea-salt always contains a certain proportion of iodine, but not enough. From ten to fifty parts per thousand are required, and the commission are of opinion that, if this proportion of ioduret of potassium were mixed with the salt used for food in goitre localities, the development of the disease would be completely prevented. Of course, if the people could be prevailed on to drink nothing but rain water, the chief cause of the disease being removed, success would be much more certain. It is calculated that the general use of this iodurettted salt, in the goitre countries, would not entail an annual expense of 320*l*.

Dr. Grange, indeed, has employed this simple method with the best effects during the last eighteen months. Goitre has been banished from every family which consented to employ the iodurettted salt in a persevering manner. At the expiration of a few months, not a single individual remained affected, although every member of the family, from five years of age, had been previously afflicted with the disease. This is a most encouraging result, and a great triumph for medicine."—*Med. Times*, Nov. 16, 1850.

31. *Chloroform in Lead-Colic.*—Dr. Aran has published, in the *Bulletin de Thérapeutique*, for Oct. 15th, 1850, the results of his experience in the use of chloroform as a remedy in lead-colic. The following are his conclusions:—

There can be no doubt as to the possibility of very soon curing lead-colic, by the internal and external use of chloroform. The advantages of this treat-

ment are striking. Lead-colic is eminently a painful affection; chloroform removes the pain. The disease is probably dependent on intestinal spasms, which tend to produce the characteristic obstinate constipation; chloroform calms the spasms. It does not, indeed, cause the lead to be evacuated from the system; but, by the employment of sulphur and alkaline baths, the skin is freed from the metal; and the same effect is produced on the intestines by enemata. No inconvenience is likely to arise when the evacuations are re-established slowly and with difficulty, from the use, for some days, of castor oil or some other mild purgative. Drastic purgatives frequently increase the colic, and even produce vomiting, when given before the pains are calmed and the evacuations re-established. Chloroform, applied principally externally, immediately calms the pains, and facilitates the use of purgatives, if it be found necessary to employ them.

The mode of external application, adopted by Dr. Aran, is to pour from one to two drachms of chloroform on a wet cloth, and keep it applied to the abdomen for a quarter or half an hour. He also gives it in mixture; and in enemata, preceded by a common injection. It is on the local application, however, that he seems to place most reliance. The enemata have sometimes appeared to increase the pain.

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32. *On the Treatment of Itch.* By MM. Bazin and Bourguignon.—M. Bazin, physician to the St. Louis, in a recent report, furnishes an account of the trials he has made of the various means of treating the itch, and of the definitive results he has arrived at. He states that, at the time of his appointment in 1847, the medium time occupied in treating the disease by the *sulphuro-alkaline ointment* applied to the wrists and insteps, together with sulphureous baths and fumigations, was fourteen days; but that since he has caused the *entire body* to be well rubbed with it (rubbing with extra force those parts the acari specially infest), the patients are dismissed cured in two or three days. Some practitioners who have adopted the plan have erred in its application by leaving some portions of the body unrubbed, or by continuing the friction as long as any itching was perceived. In the first case the disease reappears; while in the other, by prolonging the frictions beyond the time necessary to destroy the acari, and the vitality of their ova, other eruptions are induced which give rise to great itching. This itching and eruption, occurring after the employment of two complete frictions, furnish an indication to desist instead of to continue; and if they do not then disappear, they may be relieved by tepid baths.

There are cases, however, in which, from the existence of great abundance of pustules, the sulphuro-alkaline ointment would excite too much pain, or in which the patients have such an invincible repugnance to its smell, that we should resort to some other substance; and M. Basin finds, by numerous trials, that the *lard* and *oil*, which form the base of all antipsoric preparations, if employed in general frictions, either together or separate, will effect a cure, only from four to six, instead of two, frictions being required. Another ointment recently tried, containing *chamomile*, cures in three frictions, soothes the itching instantly, and does not give rise to any secondary eruption. It is composed of equal parts of fresh chamomile, olive oil, and lard.

M. Bourguignon, in his recent prize essay, prefers the *staphisagria* to any other remedy. He adds 300 parts to 500 of lard, stirring the powder into the boiling lard, and keeping up a temperature of 100° C. for twenty-four hours. After straining, a little essence may be added. Baths should be taken before and during the treatment, and the frictions should be made four times a day, the cure being completed by the fourth day.—*British and Foreign Med.-Chirurg. Rev.*, Jan. 1851, from *L'Union Médicale*, 1850, Nos. 82, 135. *Journal de Chimie Méd.*, No. xi. p. 671.

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33. *Disease of the Heart and Chorea.*—M. Trousseau frequently points out to his class the correlation so often observed between disease of the heart and chorea; so that examination of this organ, and inquiry into the history of the case as regards rheumatism, should never be neglected. Such correlation supports the views of those who regard the disease as rheumatic or rheumatoid;

and indeed if this were not its nature, how can we explain that a disease which induces such marked disturbance of different parts of the nervous system, even to the intellect itself, should be so completely curable?—*British and Foreign Medico-Chirurgical Review*, January, 1851, from *Gaz. des Hôp.* No. 86.

34. *Sulphate of Zinc in Chorea.*—Whilst visiting the medical wards of Guy's Hospital, we have often noticed the success with which sulphate of zinc is administered in cases of chorea; and although we are aware that the profession have been made acquainted with the power of zinc in chorea by the able paper of Dr. Hughes, in the *Guy's Hospital Reports* for 1846, we put the following cases upon record, that the continued good results of this mode of treatment might be extensively known. Before entering into details, we shall just quote from Dr. Hughes's digest a few facts connected with the use of zinc in the convulsive disease under consideration.

"*Zinc.*—This metal has been more largely administered than any other. In all cases, with the exception of two, which were successfully treated by the oxide, the sulphate has been in the form in which it was prescribed. The dose has been increased up to thirty-six grains three times a day. It has not often caused sickness. The stomachs of some persons, however, appear unable to bear it, even in small doses; and in others the organ rebels against the increase after a certain number of grains has been attained. Zinc was prescribed in sixty-three cases. Of these it effected a cure in forty-five, or seventy-one per cent.; it relieved in two; it failed to effect a cure in sixteen, or twenty-five per cent. In seven of the forty-five cases iron had previously failed; the zinc was given together with iron in one, and with the administration of electricity in five cases."

It will thus be seen how trustworthy a remedy is the sulphate of zinc in this disease; still, as chorea, independent of its connection with rheumatism, often arises from imperfect nutrition, it might be the case that the improved diet, rest, and comforts which the patients experience in the hospital, had some share in the amendment. We should not omit to state that we heard Dr. Golding Bird maintain in the wards, a few days ago, that zinc has a peculiar and specific influence on the nervous matter, in about the same manner as iron on blood.

The first case, the notes of which were taken by Mr. H. B. Wood, refers to a little boy eight years of age, very weakly and strumous-looking, who was admitted into Job Ward Oct. 11, 1850. He had had frequent attacks of croup, and never enjoyed robust health. About three weeks ago, whilst going to school, he was frightened by a bullock, and a few days afterwards he began to exhibit strange contortions of the body, which went on increasing in frequency and intensity up to his admission. The poor little patient was in fact constantly in motion, except when asleep. When examined, he was found very thin; skin hot and dry, and pupil dilated. The intellect was quite clear; the tongue red and injected, and protruded in a quick, sharp manner, but withdrawn quietly. The articulation was considerably affected. Pulse 76, sharp, very irregular in rhythm, with systolic murmur under the nipple. Respiration very irregular in frequency; bowels open; and appetite inclined to be voracious. The involuntary muscular twitches of all the extremities are constant.

Purgative doses of mercury with soda were administered, and a few days afterwards the patient had sulphate of zinc, galbanum pill, and extract of hyoscyamus, of each two grains, in the form of pill, one to be taken morning and midday. The sulphate was increased by half grains every other day, and on the sixth after admission the systolic murmur had decreased, and the movements were less convulsive. Wine was ordered on the fourteenth day, and on the seventeenth the patient was reported as improved in every respect; the heart's action was more regular, and the muscular contraction of the limbs hardly noticeable, except the patient became excited. On November the 3d, the twenty-second day after admission, the little boy was beginning to feed himself; the hands were getting steady, and the respiratory movements, as well as the action of the heart, more regular. On the thirty-ninth day he could almost command the use of his limbs, taking, at the time, eleven grains of the

sulphate per diem; and he was discharged December the 9th, about two months after admission, walking without any involuntary muscular contraction, and in good general health.

The notes of the second case were taken by Mr. Oddling. The patient is a little boy six years and a half old, who was admitted into Job Ward November 19, under the care of Dr. Addison. He is a child of fair, florid complexion, and light brown hair; has always enjoyed good health up to a month ago, when, having been sent to a shop with money which he lost on his way, he returned home very much frightened, and on the next day strange movements were first observed. We may mention in this place that fright has certainly a large share in the causes which produce chorea; and if we turn to Dr. Hughes's excellent paper, we find the following passage on the subject: "*Fright.*—It appears to be generally acknowledged in the profession, and it is very commonly assumed by parents, that fright is a very frequent exciting cause of chorea. As far as the table may be trusted—and as regards the particulars enumerated I believe it may entirely be trusted—this very common opinion appears to be correctly founded." The patient had never had rheumatism. We are aware that this is not the place for entering upon the consideration of the connection which has been traced between chorea, rheumatism, and heart-disease; but we shall just quote, from the *Guy's Hospital Reports* of 1846, Dr. Hughes's opinion on the subject. "*Rheumatism.*—Next to fright, rheumatism may be regarded among the most common causes of chorea. The connection between the two diseases has been often noticed, and the frequent concurrence of spasmodic affections with pericarditis, which, in the great majority of cases, is of rheumatic origin, has been particularly illustrated by Dr. Bright, and more recently by Dr. George Burrows. It appears at least doubtful whether, in most of such cases, there exists anything more than a sympathetic affection of the spinal marrow, seeing that after the removal of the rheumatic affection the chorea is usually curable by the same remedies which are found available in cases of chorea having a different origin." Dr. Hughes states that from his table rheumatism was the cause of chorea in the proportion of fourteen per cent.

On admission it was found that the head and all the limbs were constantly being tossed in every direction; there was difficult articulation, but the convulsive movements were pretty similar in amount on either side of the body. The mind was clear; the boy never had a fit; the respiration was normal; the tongue clean; the appetite good; bowels costive; and the urine normal. The first sound of the heart was accompanied by an abnormal bruit, but the rhythm otherwise regular, and the skin moist and supple.

Dr. Addison ordered a purgative dose of scammony and mercury, and soon afterwards one grain of sulphate of zinc, to be taken three times a day. On the third day the dose was increased to one grain and a half, and on the tenth day the convulsive movements had considerably diminished, the abnormal condition of the heart was disappearing, the general health being very good. The dose was now increased to two grains and a half three times a day. On the twentieth day the movements were but very slight, and the cardiac bruit had materially decreased; the patient now took four grains at the same periods. On the twenty-fourth day five grains were ordered; and on the twenty-sixth day after admission the boy was discharged without a vestige of choreic movements, though there was still a slight murmur accompanying the systole of the heart.

We lately noticed, in Job Ward, a third case, which has so remarkably improved, that we annex a short sketch of it from Mr. Wood's notes, though the little patient is not yet quite well. This boy is fifteen years of age, and was admitted under the care of Dr. Barlow, December 18th, 1850. He is the son of a stonemason; has been subject to ulcers on the extremities and pains in the head, but never had a fright, fall, blow, or rheumatism. For the last six months he has been engaged as waiter, with a great deal of work up and down stairs, never going to bed before twelve o'clock. He was at last obliged to leave his situation, with pains in the back and head, and difficulty of walking. His manner was at the same time altered; he would, without any apparent

cause, burst out crying or laughing, and make contortions in the face, which, with twitchings of the limbs, became worse and worse, the articulation growing indistinct at the same time.

On admission he was found to be a strumous boy, of light complexion, and vacant expression of countenance, the whole frame being affected with convulsive movements, which every second caused the whole frame to be tossed in different directions. The tongue was protruded with difficulty, and it was almost impossible to understand what the patient wished to say. The right side of the body is worse than the left, and when the boy is spoken to or looked at the paroxysms are frightful. Appetite voracious; slight pain in the head; skin hot, but pliable; pulse frequent and irregular; tongue injected round the edges, but creamy in the centre. The patient sleeps badly, but the action of the heart and lungs is healthy. After a smart purgative, Dr. Barlow ordered half a grain of sulphate of zinc to be taken three times a day. On the third day this was increased to one grain; on the eighth to two grains, and thus the doses were increased by one grain every other day. The boy is now taking five grains three times a day, and is almost well. As he was accustomed to take much malt liquor, Dr. Barlow allowed him a pint of porter per diem.—*Lancet*, Jan. 11, 1851.

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35. *On the Treatment of Obesity.* By T. K. Chambers, M.D.—That form of disease which commences at birth, and goes on increasing during infancy and childhood, is, I believe, so invariably fatal before the age of puberty, that I do not think we have reason for hoping that it is in any way amenable to medicine. At all events, I have not been able to discover any one whose experience has led him to pronounce it curable. It is a form of monstrosity; and as the subjects of it commonly display some other bodily malformation, and a deficiency of intellect, their death is a relief from a miserable prospect.

When it begins in childhood, or about the time of puberty, we must not be deterred by the circumstance of its being hereditary from attempting to remedy the inconveniences arising from it. We cannot truly reduce our patients entirely to the average size and weight, but we may enable them to pass life in comfort and usefulness.

The later the disease commences, the more controllable it is by management, until the middle period of life is passed, and then old age impedes in some degree the benefit which we may confer, not by rendering our measures inert, but by preventing our employing them quite so actively as we should have done earlier.

The first thing indicated in all cases is to cut off, as far as possible, the supply of material. Fat, oil, butter, should be rigorously interdicted in the diet table. But all eatables contain some portion of oleaginous matter, and especially those most convenient to advise the use of for a lengthened period. And almost all are capable of a transformation into fat, when a small quantity of this substance is previously present. It is desirable, therefore, that the mass of food should lie in the stomach as short a time as possible, in order that at least a fatty fermentation may not be set up in it. Very light meals should be taken at times most favourable to rapid digestion, and should consist of substances easy of solution and assimilation. To this end, the time of the meals should be fixed for an early hour in the day, before exertion has rendered the powers of the entrails languid and weak. Breakfast should consist of dry toast, or what is still better, sea-biscuit; and if much active exercise is intended, a small piece of lean meat. Dinner at one, on meat with the fat cut off, stale bread or biscuit, and some plain-boiled maccaroni, or biscuit-pudding, by way of second course.

Liquids should be taken, not at the meal, but half an hour after, so as not to impede the action of the gastric juice upon the mass. Here should end the solid feeding for the day; no second dinner or supper should follow, nor, indeed, any more meals be taken sitting down. A piece of biscuit and a glass of water can be taken standing up, if faintness is experienced; a cup of gruel or roast apple before going to bed.

This is not a scale of diet by any means unattainable. A butcher and re-

tired pugilist has adopted it for some years with the greatest comfort to himself. He is able, upon it, to work in the most violent manner in a small garden which he cultivates for himself in the suburbs. He has reduced himself from 20 to 17 stone; whereas his brother, who has not the same strength of mind, has increased to 23 stone in weight. Persons of more refined education ought, and often do, practice the same self-imposed restraint more easily. J. R. has reduced himself from 22 to 18 stone, and sometimes brings himself down to 17, but finds that he derives no particular advantage from being of the lower weight.

The smallest amount of nutriment consistent with the health of the individual can be found by experiment only; but we need not fear that ten ounces of solid food a day is too little, for the last-mentioned gentleman confined himself for a long period to that quantity, and found his mental and bodily powers always equal to the strain which the pursuit of a laborious profession in London demands. It may be remarked, by the way, that it is often advisable to add a small allowance of malt liquor at dinner, as otherwise the craving of the appetite is less easily appeased. The beers to be avoided are of course the thick, sweet kinds, but that which is thoroughly fermented, at a low temperature, in the Bavarian way, seems to contain very little injurious matter.

I do not know that any advice concerning sleep is peculiarly applicable to obese persons, beyond what we should recommend to all classes of men. A draught of morning dew, "nocturni roris auram ante solis ortum bibendam," which Aurelian prescribes for the corpulent, is equally beneficial to every one. They are usually uneasy sleepers, and though lethargic, by no means averse to early rising.

In cases where the fat is largely accumulated in the omentum, it is very convenient for the patient to wear a band round the abdomen, which may be tightened gradually. The support thus given to the abdominal muscles relieves the dragging sensation in the loins, which many persons, whose viscera are heavy in proportion to their strength, experience. It enables exercise to be taken with more facility, and appears also, by pressure, to afford some assistance to the absorption of fat.

The above remarks will apply equally to all forms of obesity; the abstinence recommended can be borne even by the aged, and only comfort be experienced.

As respects exercise, however, a distinction requires to be made. The young and vigorous, whose obesity does not prevent the use of their legs, cannot employ them more usefully than in walking as long as they are able. The greater number of hours per day that can be devoted to this exercise, the quicker will be the diminution of bulk. But as riding, by the gentle shaking of the abdomen, excites the secretions of the digestive organs more, it should, where practicable, be employed in addition. Where freedom of motion has once been gained, rowing, shooting, any or all of the forms of British gymnastics, should be adopted as regular habits.

But in the asthenic form of the disease, especially in elderly people, this is scarcely practicable. The defect in muscular power prevents the use of the limbs in walking for a long time enough to be advantageous. But where riding can be managed, it should on no account be omitted, and the suspensory belt before mentioned is often a valuable auxiliary to the employment of this exercise.

The ancients were much more in the habit than we are of using various forms of friction to the skin in treating chronic complaints; and we find in Aurelian a recommendation to the corpulent to employ dry rubbing, either with cloths alone, or with the addition of various powders. Modern habits of cleanliness supersede, in some degree, these remedies. But the skin is not unfrequently greasy from a thick sebaceous secretion, and the circulation through it languid in asthenic obesity, and in these cases horsehair gloves may be used with great advantage. Dr. Flemyng strongly advises friction to be employed to the trunk of the body as promoting absorption and invigorating the surface. The Greek additions of cold bathing or sponging, especially with sea water, the vapour or hot air bath, followed by rubbing with salt or with sand, and many other modifications of the same principle enumerated by Aurelian, will naturally suggest

themselves to every intelligent patient. The same author very sensibly advises these remedial measures to be employed fasting, and no food to be taken for some time afterwards, and modern habits render before breakfast a convenient time. To these rules of management, medicines, strictly so called, must be viewed as secondary and auxiliary. Unless these laws are obeyed, pharmacopœias are useless.

Purgatives I have generally found not needed in the plethoric form; the bowels usually act once or twice in the day. But in the asthenic obesity *of old people*, where the abdominal walls are weakened by long pressure of an unnatural weight, it is necessary to employ them.

But there is one class of medicines so universally applicable to *all* cases of obesity, that I think a trial of them should never be omitted. The chemical affinity of alkalies for fat point them out as appropriate alteratives in this complaint, and experience proves that they are suitable to the state of the digestive organs. The most eligible one is liquor potassæ, and it may be administered in much larger quantities than any other. If given in milk and water, we may safely commence with half a drachm and raise the dose to a drachm and a drachm and a half three times a day. The milk covers the taste of the potash better than any other vehicle. It has truly the advantage of saponifying a portion of the remedy, but there is no evidence to prove that its efficacy is thereby endangered; indeed soap itself has been strongly recommended. A physician, whose case is recorded by Dr. Flemyng, reduced himself, by Alicant soap alone, two stones in weight.

I have often given the above-mentioned doses of liquor potassæ (even to children in cases of scrofula and consumption) without any harm arising from its use, when taken, as desired, in milk. The fear of alkaline medicines has probably arisen from the injury observed by Huxham to follow the use of Mrs. Stephen's saponaceous mixture, at one time so popular, and therefore often misapplied. The injury appears to have originated from their having been employed in improper cases, such as debilitated gouty subjects, chronic stone in the bladder, and the like, to which, of course, much harm would be done.

A poor woman, who sold eggs in Chelsea, was becoming quite unable to gain her livelihood by her ordinary occupation. I have not kept a note of her weight and height, and therefore she is not mentioned in the table of cases, but she was extremely obese, and the cause of a variety of symptoms she complained of seemed traceable entirely to the accumulation of fat. By taking liquor potassæ only, without change of diet, she was reduced so far as to carry on her trade with comfort.

Another case was communicated to me the other day, of a gentleman who weighed 19 stone 7 lbs. By regimen, exercise, and liquor potassæ, he was reduced two stone and a half in six weeks.

I have mentioned bleeding, and perhaps that may cause some surprise, after the observations which have been made on the state of the circulation in fat people. But where distinct signs of plethora are present—such as pain over the eyebrows, beating of the temples, restless sleep by night, lethargy by day, with full lips and an elastic skin—it is capable of being employed with safety; and where it is employed, the advantage derived at the commencement of a course of treatment is very great, for it gives all the other remedies a fair start; and by affording immediate relief to many symptoms, gives the patient a favourable opinion of the plan he has undertaken.

On the other hand, it is scarcely necessary to say that much risk attends the loss of blood; for if the heart has become atrophied and weak, it will not stand the shock. Venesection may cause either sudden death, from failure of the heart's action, or effusion of blood in the brain, from disturbance to the circulation.

Bitter tonics are often of great advantage in enabling the stomach to digest more easily and rapidly, and therefore to be contented with a smaller quantity of really nourishing food. The increase of appetite which they cause does no harm; for when patients are getting better, they are usually more obedient to their medical man, and can be taught to control it. Gratitude for the benefit they have received makes them glad to follow advice, however hard.

Some medicines must now be mentioned, which have been recommended for the cure of obesity, but which analogy and experience do not approve.

Vinegar has been employed by those who are foolish enough to practice upon themselves; but as it produces thinness only by injuring the digestive organs the benefit is not worth the price paid for it, and no medical man would ever advise the use of such a remedy.

Iodine has been spoken of as likely to do good, from the power it exhibits of stimulating the absorbents in cases of scrofula and tumours. But its moderate use certainly does not cause the disappearance of healthy fat. Indeed it has been noticed by Lugol, and is matter of daily observation at our metropolitan hospitals, that patients frequently acquire a considerable degree of embonpoint during the time they are taking iodine. The cases of tumours and of fat are very distinct. As Dr. Pereira remarks, "The enlargements which these agents (mercury and iodine) remove, are not mere hypertrophies; their structure is morbid, and they must in consequence have been induced by a change in the quality of the vital activity; in other words, by morbid action. Medicines, therefore, which remove these abnormal conditions, can only do so by restoring healthy action." But the action which causes the deposition of fat in the adipose tissue is, though excessive, of a healthy nature, and harm, rather than benefit, is to be expected from the medicine under discussion; that harm which always accrues from a valuable remedy wrongly employed.—*Lancet*, 1849.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

36. *Case illustrating the Difficulties of Diagnosis of Morbid Growths from the Upper Jaw.* By Prescott Hewett, Assistant-Surgeon St. George's Hospital. (*Proceedings of Royal Medical and Chirurgical Society*, Dec. 10, 1850.) [The following case is not only interesting as illustrating the difficulties of diagnosis in morbid growths from the upper jaw, but also from the discussion to which its reading gave rise, having elicited the opinions of some of the most eminent men in the profession, relative to the use of anæsthetics, the patient having died on the table, and his death having been caused, there is reason to believe, by the chloroform administered. Though long, we republish the report entire as given in the *Lancet* (Dec. 28), and bespeak for it an attentive perusal.]

The patient, a man aged twenty-five, was admitted into St. George's Hospital, under the care of Mr. P. Hewett, in May, 1848, with a large tumour, of an irregular shape, occupying various regions of the left side of the face. Presenting every appearance of having originated in the antrum, this tumour was found in the front and back part of the cheek, in the temporal fossa, in the orbit, and in the nostril, extending to the back part of the pharynx; round in shape, but lobulated; it was firm and elastic to the touch, perfectly movable, and, in the nostril, of a dead white colour and glistening appearance. The skin, conjunctiva, and mucous membrane of the nose were quite healthy, and no enlarged glands could be detected in any part. The history of the case was, that six years previous to his admission into the hospital, the patient was troubled with a disease, supposed to be a polypus of the nose, which had been easily removed with the forceps; subsequently, however, the cheek began to swell; and the tumours gradually made their appearance in the regions in which they were found; all this had occurred without pain, and with very little inconvenience. A year ago caustic had been extensively applied in two different places, large cicatrices making the spots. This treatment had produced no effect on the disease, and no fungating growths followed the application. At different times, there had been extensive bleedings from the nose, which had somewhat reduced the patient. At a consultation of the surgeons of the hospital, it having been resolved that, in all probability, the disease was of the fibrous kind, and connected with the antrum, the removal of the upper jaw was decided upon, Dr. Snow, to whom the surgeons of St. George's are so much indebted for the able manner in which he for a long

time administered chloroform at the hospital, having kindly undertaken to give it on this occasion. The patient being seated in a chair, the operation was performed in the usual manner; but, on removing the superior maxillary and malar bones, it was discovered that the disease was not connected with the upper jaw—it was altogether behind it The larger portion of the tumour was dissected from off the pterygoid process, to which it was firmly attached. Those portions which were in the orbit and temporal fossa were removed without difficulty, being for the greater part simply connected with some very loose cellular tissue. The patient, having become faint, was placed in the horizontal posture, and a small quantity of stimulant administered, after which he soon rallied. The portion of diseased structure in the back of the nostril was then removed with a strong pair of curved scissors. The pulse having again failed, the patient was at once laid on a bed and carried into an adjoining room; different restorative means were made use of, and he appeared to rally somewhat; but shortly afterwards, as the breathing became embarrassed, an opening was at once made into the crico-thyroid membrane, and, as a last resource, an attempt was made to carry on artificial respiration with a tube; but every effort proved of no avail—the patient soon died. But few vessels were met with during the operation, and no great amount of blood was lost. Little or no bleeding followed the incision in the neck. The details concerning the administration of the chloroform are given in the following letter from Dr. Snow. A careful examination of the bones removed during the operation showed that, in the superior maxillary, the antrum was all but obliterated, the posterior wall of the sinus having been forced, by the tumour lying behind it, against the anterior one; there was merely a chink left, the cavity of which was quite free, and lined by healthy mucous membrane. The malar was much more curved than natural. The structure of both bones was perfectly healthy. The tumours were of a purely fibrous character. At the dissection of the body, it was made out that the tumour had originated in the roof of the left nostril, its main point of attachment having been to the under part of the body of the sphenoid and inner surface of the pterygoid process. Portions of diseased structure were still found in the sphenoidal sinuses, as well as at the upper and back part of the septum nasi. Some loose bits were also found deep in the temporal fossa, and at the back of the orbit. These were lying in the cellular tissue. They were all connected to each other by slender pedicles, one of which passed through a hole in the perpendicular portion of the palate bone; that in the orbit had reached this situation by creeping through the spheno-maxillary fissure. The bones were throughout healthy in structure. The tissue of the growth was purely fibrous. The trachea and bronchial tubes, even to their minute ramifications, contained a quantity of frothy blood. The structure of the lungs was crepitant throughout, but each section presented numerous small, dark spots of ecchymosis, produced by some of the air-cells having been also filled with blood; these organs were otherwise free from disease. The heart was healthy; its cavities contained small black clots, but the greater part of the blood was thin and fluid, and did not coagulate on exposure to air. The other viscera were quite healthy. In his remarks, Mr. Prescott Hewett principally drew the attention of the Society to the great difficulties which at times were found to exist as to a correct diagnosis of the precise region in which a tumour of the upper jaw had originated. Of these difficulties, the present case afforded a good illustration. The history of the patient, and the various regions in which the tumour existed, had led to the conclusion that the disease, having sprung from the antrum, had gradually burst through some of the walls of this cavity, and thence spread to the spots where it was found. The operation and the subsequent dissection proved, however, that the antrum had not been the starting-point of the disease. Mr. Prescott Hewett had little or no doubt that the morbid growth had first begun in the nostril, and had subsequently reached the pterygo-maxillary fossa, either by making its way through the spheno-palatine foramen, or by breaking down a portion of the palate-bone; once in the fossa, the progress of the tumour may easily be traced: it passed into the orbit through the spheno-maxillary fissure, and, in the face, it had in some parts made the bones yield, and in others it had so completely moulded itself to their

shape, creeping over their cutaneous surfaces, that the outlines of the bones were scarcely discernible. Mr. P. Hewett's remarks were altogether confined to tumours of a fibrous character. The morbid appearances observed about the lungs led Mr. P. Hewett to ask the question whether the administration of chloroform was advisable in operations about the mouth, where there was likely to be a certain amount of bleeding. He had no doubt that the blood found in the lungs had got there by passing through the glottis, and he doubted very much if such would have been the case had no chloroform been used. Many surgeons, fearing this accident, had of late not failed to condemn altogether the use of chloroform in these cases; but some, being unwilling to submit their patients to such serious operations without it, had adopted a middle course, administering this agent in the first steps of the operation only, hoping thus to avoid all risk. It remained still to be proved, however, whether, even with this precaution, there might not be danger in using anæsthetics in some operations about the mouth.

Mr. Fergusson said that the case was interesting in a variety of respects. It served to illustrate the difficulty of diagnosis in cases of this description. It was evident that the greatest care had been bestowed in investigating the nature of the case; every consideration had been given to it—as, indeed, no one could doubt on looking to the characters of the surgeons who had given their opinions about it; nevertheless, the disease proved to be somewhat different from what had been expected. It was supposed to have been a disease of the superior maxillary bone, but so far as he (Mr. Fergusson) could make out, it was only connected with that bone by lying in apposition with it. From the description given of the tumour, he should have supposed it to be a tumour of the antrum; and, indeed, had it not been for the very accurate description given by Mr. Hewett, of the compressed and altered condition of this cavity which was observed lying in front of the tumour, he would have concluded that it must have originated in this part. In a practical point of view, there was one feature deserving of special notice. In the description that had been given of the case, he (Mr. Fergusson) had not noticed any allusion to the shape or form of the front part of the superior maxilla. All that was said was that it seemed to be perfectly normal; that there was not any distortion of the alveolar ridge, the teeth, or the nostril. This would have led him to think the tumour deep-seated, as in most cases of tumour in the antrum it expands as much in front as at the back part. When there is not any alteration in shape or distension, in the front part of the superior maxillary bone, especially the alveolar stage, the greatest caution should be used in deciding on an operation, because the tumour, in all probability, would be deep seated, as in the present instance. He confessed that, in the absence of the particular changes in the alveolar process, to which he had referred, and from the circumstance that the tumour had extended towards the orbit, and upwards and outwards, so as to involve the zygomatic ridge and fossa, he (Mr. Fergusson) should have felt some hesitation in resorting to an operation. What had occurred here served, perhaps, to show more conspicuously the difficulties connected with such cases. There were many other points, with reference to the pathology of this disease, which he would not then allude to, as they had been already, on former occasions, discussed in that room. With respect to the influence of chloroform, he (Mr. Fergusson) had operated very frequently since its introduction, in cases of this description, and some of these operations were very protracted; yet chloroform or ether had been used in these cases, and its application repeated when its anæsthetic effect seemed to be wearing off; and he had never met with any bad results, or anything which would lead him to believe that it might prove injurious. When chloroform was first introduced, he formed the opinion that it ought not to be used in these cases, because the blood trickling down the throat might perchance enter the larynx, and perhaps produce irremediable mischief. He had himself refused to operate in one case wherein it was proposed to give ether, but experience had since taught him that in these there was but little reason to dread mischief from that cause. He even had had cases in which the blood had trickled into the larynx, and yet no harm had resulted. He would wish to ask Mr. Hewett how long the operation had lasted, for a pro-

tracted operation of this kind might exhaust even a strong man. In such a case as this, all the circumstances should be carefully weighed, before the fatal result be attributed either to the operation or to chloroform.

Mr. Hewett, in reply, said that the first part of the operation lasted for eight or ten minutes, the bones being easily separated. Taking the period of fainting, and the conclusion of the operation, the proceedings from the commencement did not exceed twenty minutes.

Dr. Webster inquired whether the blood of the patient was fluid and black-coloured after death; or, if bubbles of air were found in the cavities of the heart or veins, as in cases where chloroform was employed in surgical operations, and which terminated fatally, these appearances were almost invariable? An answer to these would assist in forming a correct opinion whether or not the patient's death was in consequence of the chloroform employed to produce insensibility.

Mr. Hewett said that the blood was dark-coloured, and fluid. No air was observed in the heart. He believed that if the patient had died from the chloroform, it was by suffocation, and not as chloroform acting specifically as a poison on the mass of the blood.

Dr. Snow said that he could not agree with Mr. Hewett that the chloroform had any share in causing the blood to enter the windpipe of this patient. In the first place, there was no difficulty of breathing during the operation, nor for some time afterwards. It only came on just before death, which took place after the influence of the chloroform had altogether subsided. In the next place, he had administered chloroform in several other operations for the removal of tumours, both of the upper and lower jaw, and there had been no symptoms, in any instance, of blood having entered the lungs. He exhibited chloroform, almost every week, in operations about the mouth and nostrils, in which there was a good deal of bleeding—such as the operations for epulis, for nasal polypi, and for hare-lip, and cases in which a number of teeth were removed at once, and yet in no instance had blood got into the lungs. The operation for hare-lip, when the infant was laid on its back, with its head in the lap of the operator, perhaps put the glottis to as severe a test as any operation. He had administered chloroform, in nearly twenty cases, with the child in this position, since Mr. Hewett's case occurred: and he had also seen the operation performed in this way several times, in King's College Hospital, without the chloroform. There was a good deal of spluttering, whether this agent were employed or not, but in neither case did any symptoms of blood having entered the lungs ever supervene. He had performed some experiments in relation to this subject. In one of these, a kitten having been made so insensible that it did not flinch on being cut, was immersed over head in tepid water, coloured with logwood, and allowed to remain half a minute. During this time it moved its ribs in the attempt to breathe, but did not draw in any water, for it recovered readily from the chloroform after being withdrawn; and being then killed, its trachea contained no froth, and was not stained by the logwood. Flourens had pointed out, on the introduction of the inhalation of ether, that the functions of the nervous centres were abolished under its influence, in the same order as in asphyxia; and this was equally true of chloroform. But it was not found in asphyxia, by submersion, that a person began to fill his lungs with water as soon as he became unconscious; on the contrary, but little water was drawn in even during the last gasps which took place as he was dying. Indeed, as the glottis was an organ of respiration, it was to be expected that it would retain some amount of sensibility as long as breathing continued. As the blood, in Mr. Hewett's case, seemed not to have entered the windpipe by the wound made after death, in order to perform artificial respiration, it must have entered just before, when the patient was in a state of collapse, and moribund. There were spots of ecchymosis in the lungs, as he witnessed; but the quantity of blood was not enough to cause death so soon, although it might have produced ill effects, had the patient survived. With regard to the fluidity of the blood in the deaths caused by chloroform, he thought that it was probably due to the artificial respiration which had been employed, for he had not found the blood quite fluid in one animal out of a great number which he had killed with that agent.

Mr. Henry Charles Johnson had assisted Mr. Hewett in the operation under consideration. Now, it was suggested that the death might be accounted for in three ways, each distinct from, and unconnected with chloroform. First, the patient might have sunk from the length of the operation; secondly, he might have inhaled the blood during the existence of the syncope; and thirdly, the blood might have trickled through the wound in the trachea, and thus have produced suffocation. In answer to the first of these suggestions, he would reply that the operation was not longer than is usually the case in similar proceedings; the first steps were rapid, and the operation was only suspended during faintness: including the second part of the operation, the whole proceeding was not so long as is frequently the case in operations about the face. He thought this disposed of the first suggestion. With respect to the second suggestion, he was not aware of any case, where, in consequence of syncope during, and collapse after an operation, blood passing down the throat had found its way into the windpipe. Thirdly, the operation of opening the larynx was performed when the patient was expiring; the opening was made rapidly; there was scarcely any blood at all, and he believed none had escaped into the wound. Now, had chloroform any influence in producing the fatal result? For his own part, he had, since the occurrence of this case, abandoned chloroform in all operations about the face. Whether chloroform did or did not facilitate the admission of blood into the trachea, might admit of some difficulty of solution; but of this we were sure, that in the case before us, in which chloroform had been used, blood did get into the trachea and down the bronchial tubes, and death was the result.

Mr. Barlow was certainly quite under the impression that the man's life was destroyed by chloroform. It seemed far more reasonable, far more agreeable to the actual circumstances, to suppose that such had been the case than to conclude that death had been owing to the operation simply. It was gratifying to hear Mr. Fergusson state that he had removed the upper jaw so frequently, where chloroform had been given, without any bad result; this might happen, and yet some degree of risk have attended its administration. Six cases might do well, but the seventh might be followed by the issue of Mr. Hewett's. Looking to the effects of chloroform on the glottis and respiratory muscles, which could in no wise be moderated often, he doubted the propriety of chloroforming the patient in such an operation as that described; for a fatal case had happened in spite of the skilful administration of the anæsthetic agent, and an operation performed with as little delay as that case allowed of. There was no fault attaching to the giver of the chloroform; they were discussing quite another question. He thought the inquiries of physiologists deserving of some consideration in reference to the general operation of an extremely powerful agent. He had often experimented therewith, and he knew of nothing which so extraordinarily affected the muscular irritability; the high irritability of the batrachia was destroyed by it with a wonderful swiftness. In the case before them, blood appeared to have flowed through the glottis, because it was inirritable; the patient could not eject it, because coughing was impossible, so that he was endangered doubly. Mr. Barlow concluded by requesting his distinguished friend, Dr. Marshall Hall, to favour the Society with his valuable experience of the operation of this agent upon animals.

Dr. Marshall Hall observed, that he had listened with the deepest interest to the details which had been read to the Society, which he thought was under great obligations to the author for bringing forward so interesting a case, involving so important a question as that of the administration of chloroform; for it was this, in its largest sense, to which the communication gave rise. He (Dr. Hall) had performed a vast number of experiments on the effects of chloroform on the animal economy, and if he had been asked the question relative to its probable effect on the human subject before it had ever been administered to it, he should have said that its administration would be attended with the utmost danger. He believed that he might declare, that the effects of chloroform on the animal system, by inhalation or imbibition, are displayed, first on the cerebral, secondly on the spinal, and thirdly on the ganglionic systems, respectively, in relation to time. It required the utmost skill to *limit* its opera-

tion to the first of these; and if its influence extended to the second, there was danger, from the failure of respiration; and if to the third, there was sudden death, from the cessation of the circulation. The transition from one of these stages to the other was apt to be sudden, and unexpected dissolution was the terrible consequence. This event had taken place in the human subject; it had been then referred to unsuspected disease of the heart or lungs, but in this opinion he had no confidence; in experiment, the same unsuspected event has occurred. We remember the occurrence, in a lecture by Mr. Brande, at the Royal Institution. That gentleman having placed a guinea-pig under the influence of chloroform, it fell on its side. The lecturer is reported to have said, "The animal will speedily recover from this momentary debility;" but it never did recover! He (Dr. Hall) had seen the same unexpected death repeatedly. And yet it was said that many hundreds, nay, some thousands, of patients, had been placed under the influence of chloroform at St. Bartholomew's Hospital without a single fatal result. The hospitals of St. George and of St. Thomas had been less fortunate. Still it was marvellous how few accidents had occurred. This he ascribed entirely to the extreme caution and skill with which this dangerous agent had been administered, and much credit was due to those praiseworthy members of our profession who have devoted themselves specially to this responsible task. It was not in hospitals, however, but in private practice, that, from the want of equal experience, the danger of administering chloroform was greatest. It was accordingly in private practice that fearful events had most frequently taken place. In general, he believed the fatal result had occurred from the influence of the chloroform on the ganglionic system and the heart. In the case before the Society, it was obviously from affection of the spinal system and defective reflex or diastaltic closure of the larynx. This orifice became paralyzed in its excitability and in its contraction, and the blood present in the mouth was drawn into the larynx and bronchial tubes, inducing asphyxia. That the affection took place in the order he had mentioned was obvious from the simplest experiment. If a frog were inclosed in a tumbler inverted over a plate, and exposed to the vapour of five drops of chloroform, it soon ceased from voluntary, and then from respiratory movements; afterwards the circulation failed. He might also remark, that, tried in this manner, chloroform was a far more dire and active poison than even hydrocyanic acid. There was no question, he thought, that the vapour of chloroform was more dangerous than that of ether, and he had often wondered that it should have been preferred as an anæsthetic agent. Before he sat down, he begged leave to communicate a fact of some interest to the Society. The fellows would doubtless remember the case of amputation read to it some time ago, said to have been performed during a state of anæsthesia induced by mesmerism. It was argued by him, at the time, that the reported perfect immobility of the patient proved too much. Volition being removed, there ought to have been reflex movements. He understood that the man had since confessed that he acted the part of an impostor!

Dr. Copland remarked that one circumstance had not been, he thought, sufficiently noticed by the speakers: he alluded to the question, whether the shock of an operation was greater or not, and more or less dangerous, when chloroform was administered. He believed that the shock was greater, and the danger increased when chloroform was administered; he believed that the reaction which followed an operation when no chloroform was given was salutary and advantageous to the patient, and thought the shock was greater when you deadened sensibility in any way. In the case under discussion, it was not known whence the blood in the bronchi had originated. Now, when death occurred from chloroform, the lungs were congested, and the blood in a fluid state. Chloroform relaxed the small vessels, and hence we might explain the presence of the blood in the bronchi and air-cells, by supposing it to have been an exudation from the lining membrane, consequent upon the twofold cause of a relaxed condition of the capillaries, and an unusually fluid state of the blood.

Mr. Tracy said, in this case it appeared, from the statements of all who were present, that the man rallied from the syncope. Now he never heard of, or saw, a case in which such reaction took place, when chloroform destroyed the

patient. Was the death attributable to the influence of shock? In no case, he believed, did blood get into the lungs in operations about the teeth and face when chloroform was used.

Dr. Addison said that, in a fatal case which he saw, death was preceded by the cessation of hemorrhage from the part under the knife; the heart having become remarkably enfeebled, and having ceased to beat. On what grounds did Dr. Snow declare so confidently that the patient did not die of chloroform?

Dr. Snow said that there was no room to suppose that the patient had died from the influence of the chloroform, for, at the beginning of the operation, when the insensibility was greater than at any subsequent period, the patient was only in what he termed the third degree of narcotism; and the fourth degree, in which there is relaxation of the muscles and stertorous breathing, could be induced with perfect safety, and was often seen in operations. Mr. Barlow had stated that there appeared no other cause for this patient's death than the chloroform; he (Dr. Snow) considered that there were sufficient causes. The operation itself was one which the surgeon considered dangerous under any circumstances, and thought it his duty to explain that danger to the patient. In this case it had to be undertaken in a subject blanched by previous loss of blood; and again, unusual difficulties were met with during the operation: the tumour could not be all removed, oozing of blood continued, and the wound could not be closed; consequently the operation might be considered, in some sense, as lasting to the time of death. There was also the shock arising from pain, which was altogether prevented, only in the early part of the operation, in this case. Of all the operations that he had seen, during the three years that he had constantly attended St. George's Hospital, this appeared the most formidable, and the patients having recovered from the immediate effects of all the other operations, under ether and chloroform, it seemed hard upon the latter agent that it should be blamed in this case.

Dr. Webster apologized for repeating his question, respecting the morbid appearances noticed in the blood; as he considered them essential in deciding whether death was produced, in the case under discussion, by chloroform or otherwise. In most of the patients acknowledged to have died from the employment of that agent, air was met with in the heart or veins, whilst the blood was always fluid and black coloured. Undoubtedly, a person might sink from so severe an operation as the one performed by Mr. Hewett, and which was somewhat similar to a case under the care of the late Mr. Liston, where the patient never rallied from the shock, but died very soon afterwards, although chloroform had not been employed. This might also have occurred in the present instance; but he (Dr. Webster) thought, notwithstanding the arguments used, and the explanations made that evening, the death of the individual whose history has been now detailed to the Society, was chiefly owing to the anæsthetic agent employed, and not from the operation, however severe.

Mr. Prescott Hewett replied that no air was found in the heart, and the veins were not examined in reference to the point.

Mr. Charles Hawkins said that conflicting opinions respecting such a case as this prevented younger surgeons from arriving at any conclusion respecting the employment of chloroform in this class of cases. He had seen Mr. Hewett perform this operation, and he never recollected to have seen a patient die so soon after an operation. Patients were rarely, indeed, carried away from the operating table merely to die. The case was more like one in which sudden death resulted from the escape of air into the veins. He would inquire, then, what really was the cause of death in this case? Mr. Fergusson did not attribute it to the chloroform, as he had performed the same kind of operation in six cases since this one, under that agent. He (Mr. Hawkins) had been surprised to hear Dr. Copland express his opinion that the shock of an operation was greater under chloroform than without it. He had always thought the contrary to be the case. If, however, Dr. Copland was right, his opinion offered another argument against the use of this agent. He had seen a patient die suddenly from the shock occasioned by the passage of a bougie.

Mr. Cæsar Hawkins said that it was natural for Dr. Snow to throw off the blame from the chloroform; but he (Mr. Hawkins) would remark, that there

could be no kind of reflection cast upon the operator; for all who had witnessed the careful and scientific manner in which Dr. Snow administered this agent would be sure that every precaution as to safety would be taken. Now, he believed that the death resulted from the presence of the blood in the larynx, and that this blood would never have found its way into that passage unless chloroform had been administered. It was a very rare accident, and offered no sufficient reason why we were to abandon the use of chloroform. Notwithstanding what Dr. Marshall Hall had said respecting the dangerous character of this agent, it had been employed in St. Bartholomew's Hospital in 6000 cases, and in St. George's Hospital from its first introduction into practice most extensively, and yet this was the first case in either hospital in which mischief had resulted from its employment. No doubt, chloroform was a strong poison, and in St. George's Hospital it had never been given, he believed, as in St. Bartholomew's, in petty operations, such as drawing a tooth, &c. The only places, he believed, in which deaths had resulted from chloroform were the Borough hospitals, two deaths having occurred in Guy's and one in St. Thomas's. In these cases he believed that the chloroform was administered by inexperienced persons, and not, as in most other hospitals, by an operator of Dr. Snow's acknowledged ability and experience.

Mr. Solly said that the fatal case which had occurred in his practice had been published by him in all the medical journals. It was quite true that in St. Thomas's Hospital no one was appointed to give the chloroform, but still the effects of the agent upon the patient were watched by a competent person. In his case the surgery-man had certainly held the chloroform, but a dresser watched the patient, and all at once said, "The pulse is flagging." The patient died almost immediately. He thought chloroform killed by paralyzing the heart. In Mr. Hewett's case, he thought the loss of blood produced syncope, and the chloroform so paralyzed the heart as to prevent reaction, and the patient died. In two operations for removal of the upper, and one of the lower jaw, which he had performed, he had relied on the heart recovering from the syncope, to get rid of the effects of the loss of blood, and should not give chloroform when much loss of blood was likely to result from operation. Did Mr. Hewett's patient inhale the chloroform sitting or lying?

Mr. Hewett.—Sitting.

Mr. Benjamin Phillips said that there seemed amongst the speakers to be very great difficulty in arriving at any satisfactory conclusion respecting the cause of death in Mr. Hewett's case. But surely every gentleman present must be aware of the fact, that cases of the kind were by no means of uncommon occurrence before ether or chloroform were employed in surgical operations. A great many cases were on record, where the patient died during the operation; they were as inexplicable as this case, but they did occur when no chloroform had been employed.

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37. *Results of the Use of Chloroform in* 9000 *cases at St. Bartholomew's Hospital.* By Mr. Skey.—One of the most interesting questions connected with the subject of operative surgery relates to the use of anæsthetic agents employed for the purpose of suspending the function of sensation. This question has assumed a moral, as well as a medical type. It has been urged, that sensation is a natural function of the living organism, and that to suspend it by artificial agency is to set at nought the ordinances of nature; and that man is born to suffering, as evidenced by the sensibilities of his body. If the soundness of this argument be admitted, it would be difficult to draw a line which would define the boundary at which moral and *immoral* suffering meet; or to say, in what form of suffering our remedial agents may be justifiably resorted to. The sensibilities of our frame are not given us by nature to the end of promoting pain, but to enable us to avoid it. Corporal suffering is no part of the discipline of the mind; nor can it even be generally asserted that its excess exercises a salutary influence on the character. Every movement of our body instinctively points to the avoidance of bodily suffering; why, therefore, should we not as readily and unobjectionably employ the agency of anæsthetic medicines for the purpose of suspending bodily pain, under the circum-

stances of an otherwise painful operation, as we endeavour to mitigate the bodily suffering of any other patient cast down on a bed of sickness? Will not the objection to the anæsthetic action of opium to a region affected by a neuralgic pain, or to the system generally, hold as strongly as that of another agent of the same principle given to avert the pain of an operation?

The medical arguments against the use of anæsthetic agents have a somewhat better foundation. That great and sudden determination to the brain, and an unnatural circulation of venous blood, result from their employment, is undeniable.

It is undeniable, if the quantity administered be large, and long continued, that symptoms resembling those of apoplexy present themselves, in the form of extreme congestion of the vessels of the face, stertorous respiration, and total insensibility; and it cannot be denied that occasionally its full administration leads to headache, vertigo, and languor of some days duration; and cases are recorded in which death itself has followed in the course of an hour or more after its employment. It must be observed, however, in pursuing this question in strict accordance with the laws of evidence, that we have no *proof*, in the cases above referred to, that death was the direct effect of the supposed cause. The parties administering it were not fully experienced in the mode of its application. They entertain the *opinion* that death was referable to it, while it cannot be disputed that the fatal issue may be attributable to other causes: and, in one example, it appears more reasonable to refer the death of the individual to a suspension of the function of respiration by violence, than to any obnoxious agent circulating through the lungs, or brain. On the other hand, the records of St. Bartholomew's Hospital point to its successful administration in upwards of 9000 cases; in not one of which, including the aged and the young, the healthy, the infirm and the asthmatic, has its employment left a stain on its character, as an innocuous agent of good. Under all circumstances, its careful employment may be unhesitatingly resorted to in all cases, excepting only such as are marked by determination to the brain of an apoplectic type; secondly, under circumstances of great and serious exhaustion from loss of blood; and, thirdly, in diseases of the heart. In these conditions of the system, it is perhaps better avoided.

The agent in general use is chloroform, and one word may be added as to its administration. It appears indisputable that its influence on sensation precedes that on consciousness. I have employed it on several occasions, in which a patient has been conscious of all that has been passing around, and yet who has declared himself to have been totally insensible to pain. This state of his system has arisen from the moderate use of the agent, ample, indeed, for all purposes of utility, though somewhat difficult to regulate in quantity sufficient for the required object.

I prefer its gradual administration. I do not think it desirable to exclude atmospheric air, employed as a diluent during the process of inhalation. Its influence should be gradual, not sudden. I consider its application through the medium of a cambric handkerchief laid on the face, preferable to the use of instruments made for the purpose of excluding atmospheric air, and food should be rigidly avoided before its administration, otherwise sickness will frequently follow.

Against the occasional convictions or objections of others to its employment, I place the strong, and to my own mind the unanswerable fact, that it has been successfully used in so large a number of cases in St. Bartholomew's Hospital since the period of its introduction; that these cases have been indiscriminately taken, and that its objections have not yet made their appearance before the observant eyes of the medical staff of that institution, either by promoting danger during the operation, or protracting the recovery of the patient after it. In one class of cases its employment is especially applicable, viz., in that form of disease in which the pain of an operation is the chief warrant for its non-performance, and in which the recovery from a chronic disease is left to nature, that might be greatly hastened by the hand of art; such, for example, as the removal of a piece of dead bone.

Up to the period of the introduction of chloroform, a surgeon was very un-

willing to subject a patient to the painful process of sawing and chipping away portions of dead bone, with a view to reach the medullary cavity, because the operation was both a painful and a protracted one. The consequence was, that an hospital bed was occupied by a patient thus affected, for many months, to the exclusion, perhaps, of three or more claimants, who would have successively occupied it. But by the aid of chloroform the operation is now performed unconsciously to the patient, and the period of his recovery greatly abridged. With the three exceptions above mentioned, I cannot hesitate in strongly recommending its administration in all cases of large surgical operations; believing its discovery to be the greatest blessing conferred on the profession of surgery during the last century; and although I have seen its employment pushed, on many occasions, apparently to the verge of apoplexy, I cannot say, even in such examples, that the good has not largely predominated. —*Operative Surgery.*

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38. *Pathology and Treatment of enlarged Subcutaneous Bursæ.*—We have given, in a preceding department of this number, the anatomical account of these structures by Mr. Wm. Coulson, and we insert here his observation on the pathology and treatment of them, extracted from the *London Journal of Medicine* for January last.

A correct knowledge of the situation, volume, form, and position of the superficial or subcutaneous bursæ, will, on most occasions, enable the surgeon to appreciate the character of a tumour due to an increased secretion of the fluid in the interior of these sacs, to a thickening of their walls, or to an inflammatory action set up around and within their tissues. The symptom which naturally first attracts attention is the existence of an oval, colourless, elevated swelling, in an unusual situation. Should the surgeon happen to be ignorant of the previous existence there of an original bursal apparatus, for the protection of the integuments and for facilitating motion, he is at first lost in conjectures as to what the swelling may be. This has often happened. But, aware of the existence of the superficial bursæ, and of the localities which they constantly occupy, the first glance at the case not unfrequently reveals to him all he requires to know. I need not therefore dwell on this symptom, remarking merely that the tumour may be small or large, movable, colourless, or deeply inflamed; or occasionally ulcerated on its surface, and discharging pus and serous-looking fluids; or, by long neglect and the influence of time, it may appear as a firm unyielding tumour, without fluctuation or elasticity.

Even when uncomplicated, the enlarged bursæ occasionally, though not uniformly, give rise to symptoms meriting attention in a history of these affections. A certain amount of inconvenience is often felt, varying in intensity with the volume, situation, and condition of the swelling. The enlarged anconal bursa, for example, may attain a considerable size, and yet give rise to no more inconvenience than a slight sense of weakness after fatigue; even the patellar bursa may be enlarged without proving troublesome to the patient. But in others, and these, perhaps, form the majority, it is otherwise. Those in the hand, especially the carpal, cause a great sense of weakness; they are unseemly, and the deformity becomes so unpleasant to the patient, as to induce him to request the removing of the swelling at all risks. In like manner, those over the malleoli deform the foot, and cause other inconveniences. Much lameness often accompanies the enlarged patellar bursa; whilst the enlargement of the bursa over the first joint of the great toe produces not unfrequently the most intense suffering. Inflammation and suppuration follow; and death has been known to supervene from such a course, when injudiciously interfered with by the surgeon. Generally speaking, then, the symptoms indicating the presence of an enlarged bursa are sufficiently well marked to lead to a correct diagnosis.

A knowledge of the course of the tendons will enable the surgeon to discriminate between the enlargement of a superficial bursa, from that more troublesome and dangerous affection, the enlargement of the deep or profound; and he will regulate his treatment accordingly. Of these I do not speak at present, confining my remarks wholly to the system of the superficial bursæ. These swellings, then, interfere with the free use of the limbs in which they happen

to occur. The integuments may inflame and suppurate, and in this condition the case may for the first instance be brought to the surgeon. If neglected now, they cause intense suffering. The cause of the pain is not uniformly the same. In the enlarged bursa over the great toe, for example, considerable pressure may be endured, provided a corn has not happened to be induced by that pressure over the enlarged bursa. When this happens, the pain becomes intolerable, and is seemingly disproportioned, if I may say so, to the other symptoms and appearances; but it is well to know this, for the partial removal of the corn by the knife will often give immediate and great relief. A very usual symptom is a tingling sensation running down the limb, often attended with tenderness on pressure.

The position of the enlarged popliteal bursa necessitates a careful diagnosis; it may be mistaken for abscess, or for other still more dangerous affections. It is sufficient merely to caution the surgeon on this point.

The detection of the enlarged bursæ in the axilla, and in the groins, and the discriminating them from other diseases will occasionally require great attention on the part of the surgeon.

Enlargements of the superficial bursæ have frequently, no doubt, been confounded with encysted tumours; their sequelæ also present difficulties in the way of a correct diagnosis, to be overcome only by a careful observation and history of the case.

Enlarged bursæ may be either simply enlarged, or the enlargement may be accompanied with inflammation and all its usual appearances. Erysipelas may arise in the course of the disease; or at least, œdema of the superficial fascia or cellular layer, in which the bursæ are situated.

Pathology.—The morbid anatomy of this system of organs has not been made the subject of any extensive researches. What has been observed amounts to this: the contained fluid, which in health merely bedews the surfaces of the sac, increases in quantity and alters more or less in quality. Originally, perhaps, more complex than chemists suppose (such at least seems to have been the opinion of Schreger), it may undergo further changes, as a result of chronic or acute inflammation. At times, the fluid resembles the outer layer of the crystalline lens, or the vitreous humours; that is, it partakes more of the character of a semi-solid than of a liquid; at other times, it is much more fluid, or it is more serous, obviously less abounding in albumen.

The semi-fluid substance has sometimes a yellowish appearance; at other times a reddish hue; sometimes it is very fluid, of a dark, dirty colour, the product, no doubt, of an inflammatory action. The sac may be wholly obliterated, or its walls so greatly thickened and condensed as to represent a solid tumour; or the enlarged bursæ may show a dropsical character, with softening of the inner membrane, perforations, and enlargement of the traversing tendinous cords. The absence of many of these bursæ may depend, no doubt, on their obliteration in early years from blows, pressure, or other accidental violence.

The morbid appearances found in connection with the enlarged bursa of the great toe have little or no reference to the smaller bursa itself, but to the deformity caused by the simultaneous displacement of the metatarsal and digital bones of the toe. Nevertheless, when, by a separation or spreading out of the distal end of the metatarsal bones, the head or extremity of the first metatarsal bone becomes so prominent on the inner side of the foot as to be mistaken for an osseous tumour, the integuments passing over it become much attenuated in those cases where the deformity occurs in the adult. If congenital, or occurring in early years, no such attenuation happens. The bursa itself, on dissection, presents a variety of morbid appearances, according to the progress made by the displacement of the metatarsal bone, and of the phalanges of the toe. The ligaments also undergo changes, but I cannot say that I have ever observed the formation of accidental bursæ amongst their fibres. Fungous growths have been seen growing from the inner surface of enlarged bursæ; and ill-conditioned sores are also sometimes present, depending partly on the nature of the surfaces affected, and partly on the constitution of the patient.

Causes.—A variety of causes likely to produce enlargement and subsequent

disease of the superficial bursæ, have been stated by systematic writers. Unfortunately, however, by confounding these organs with the deep bursæ and synovial sheaths of tendons, or by a meagreness of detail, many otherwise interesting observations have failed to improve our knowledge of the disease. The formation of accidental bursæ I have shown to be, in every instance, doubtful, whether on the prominent part of the spine in deformities of this column, or in any other part of the body. The inflammation and enlargement of the bursæ over the great toe, happen how it will, is merely an enlargement of a bursa already existing there, and not a new formation.

Enlarged bursæ are frequently ascribed to severe pressure, sudden or long-continued, to blows, or other external violence; and to such a cause, no doubt, many cases may be traced. At other times, bursæ enlarge wholly independent of any such causes. It has been usual to speak of the enlarged patellar bursa as "the housemaid's knee," of the enlarged anconal bursa as the "miner's elbow," etc.: but many cases of enlargement of the bursæ cannot be so explained. Thus, then, they not unfrequently originate without any assignable cause. It has been said that corns and bunions (diseases very opposite in their nature, though, strangely enough, associated in surgical works), and enlarged bursæ, ganglions, and tumours, are much more numerous in the rich than the poor; of this, however, I have my doubts. The mechanical causes assigned for the production of the enlarged bursa over the great toe, and for the deformity of the foot, so frequently preceding re-enlargements of the bursa, and giving rise to it, can be distinctly refuted. I allude more especially to the theory that such deformities and diseases are caused by tight shoes.

It merits notice, that those who stand out most for the efficacy of mechanical causes in the production of such diseases, have uniformly avoided offering any explanation of the circumstance, that the disease I have just alluded to (enlarged bursa in the deformed foot), appears first not unfrequently in one foot, and is even confined to that foot, be it right or left; but if a rigid shoe were the producing cause, both feet ought clearly to be affected simultaneously. Again, when enlarged bursæ occur, which cannot be traced to any mechanical injury, it not unfrequently happens that they occur at once in both limbs; this need not surprise us, as the laws of symmetry go far to explain the occurrence. Some have carried the idea of the production of enlarged bursæ by accidental causes so far as to include under the same category the actual formation of the healthy sacs, creating the system whose nature I now describe. They have also found bursæ in situations where I cannot say I have ever observed them; namely, around corns, and between these semi-horny productions, and the true skin: but no such productions exist so far as my observations go, nor are they required to explain the intense suffering arising from the pressure over a corn. The wedge-shaped body is at that moment slowly, but surely, growing inwards, piercing the true skin, and tearing its delicate structures asunder. Take off the pressure, or remove the offending wedge, and the pain ceases.

Treatment.—It has been shown that many of the subcutaneous bursæ of the body are occasionally wholly absent, or, in other words, never were present. In this sense, then, they are not essential structures, at least not in these persons. But it has also, I think, been proved that such bursæ, when enlarged, may be obliterated by pressure, or the same result may be affected by pressure and puncture combined; or by inflammation, suppuration, granulation, and consequent adhesion of surfaces; or, lastly, when, losing their original character, they have attained, by means of fibrinous deposits, the appearance and nature of a solid tumour, they may be extirpated by the knife, and so altogether removed. These considerations, aided by a sound anatomy and physiology, which we owe chiefly to Schreger, have led me to the adoption of a simple mode of treatment, applicable to most, if not to all cases, of enlarged bursæ.

Let me first suppose, that a case of enlarged bursa, unaccompanied with any other affection, no matter where placed, presents itself; that of the great toe need form no exception; an enlargement of the natural patellar, anconal, or malleolar bursa; the question arises, how is it to be treated? Abundance of evidence exists to show, that the treatment by rest and pressure, simple friction, blistering, friction with mercurial ointment, iodine, etc., all but uniformly fail in effecting a permanent cure.

When these fail, recourse is had to a puncture, which, made with a lancet, amounts generally to a short incision; or an incision, more or less extensive, is made into the enlarged bursa, the contents evacuated, and pressure applied. This method, no doubt, succeeds; but it is unnecessarily severe, and is not unattended with danger, even in the uncomplicated class of cases. But it not unfrequently happens that, before the surgeon has seen the case, inflammation of the integuments, and of the superficial fascia in which the bursa lies, has set in, with more or less severity. Now, in such cases, the modes of treatment alluded to are clearly inapplicable, and have occasionally been attended with very serious results.

Mr. Key, in an excellent memoir on ganglia or bunion, distinctly refers to a case in which death happened from the incautious interference of the surgeon. He is speaking of the enlarged bursa on the great toe, which complaint, when complicated with the peculiar deformity I have already spoken of, he calls bunion. "I have known," he says, "gangrene of the foot and death ensue from opening an inflamed and suppurating bunion; and in three cases, exfoliation of the bones, with a most tedious and painful suppuration of the surrounding structures." He condemns all interference in such cases, in which opinion I coincide, although maintaining very different views, as to the nature of the affection, from those of the distinguished surgeon whom I have just quoted.

The mode of treatment which I prefer to all others is simply puncturing of the enlarged bursa with a grooved needle, such as is used for exploring tumours and swellings of doubtful character. After the evacuation of the contents, pressure is applied by means of soap-plaster and bandage; this is renewed from time to time, and puncture of the sac repeated if necessary. The result is uniformly a permanent and safe cure. If to this we add the almost painless nature of the operation, we have in this mode of treatment all that is satisfactory to patient and surgeon.

When the enlarged bursa becomes seriously inflamed, we should endeavour, by rest and other means, to subdue the inflammation; nevertheless, a puncture such as I have described may be practiced, even in these cases, with advantage to the patient.

In a case of anconal bursa, accompanied by high inflammation, I punctured the swelling with a grooved needle; pressure was employed; no bad results followed, and the patient recovered. Miss M., æt. 50, applied to me, October 18th, with an enlargement of the bursa over the right olecranon, the skin being highly inflamed. The inflammation had existed for ten days, and became so severe as to compel her to seek advice. I punctured it, and two teaspoonfuls of dirty-looking serous fluid came out; pressure was applied, and at the tenth day she recovered.

Sometimes the integuments over the bursa ulcerate, and under these circumstances pressure may also be employed, as in cases of simple puncture. In cases of long standing, when the enlarged sac has put on the appearance of a sarcomatous tumour, excision is no doubt the remedy, having a due regard to the integuments. The mode of treatment by the seton has been strongly recommended by many good surgeons, and I have myself adopted it with success; but a more enlarged experience has convinced me that this mode of treatment, besides being a tedious and unnecessary process, is not on all occasions unattended with danger. I think it only applicable to those cases where the question arises as to their destruction by the seton, or removal by the knife.

The following interesting cases were communicated to me by my friend, Mr. Cocks, of Hatfield, who has kindly permitted me to publish them.

"I had," says Mr. C., "for several years, an enlarged bursa on the second joint of the left thumb, produced by a blow on the fore part of the saddle, in checking the bridle of my horse. It became as large as a pea and was rather annoying and unsightly; I punctured it with a lancet, when a pinkish crystalline mass came from it; pressure was applied, and it healed. It soon grew again, and again, and the same operation was repeated. But, tired of this plan, after opening it, I rubbed the inside with a camel's-hair brush, dipped in a solution of nitras argenti (4 grs. to $\bar{3}$j of water). In a few days, it suppurated; the lining membrane sloughed away; it soon healed, and has been so for more

than a year. The next case was under my son. A servant girl, from London, had a very large bursa on the left outer ankle, just below the end of the fibula, stretching across the dorsum of the foot, about two inches long, and at least an inch wide. She had applied to several medical men in town, all of whom advised, 'nothing to be done.' It was opened by my son; solution of nitrate of silver was injected into it, and pressure by compress and bandage applied. In a few days, the greater part of the sac was obliterated; the fluid (which in this was limpid) collected in the non-adhering portion. The same treatment was applied to this part, which was followed by considerable swelling of the foot and leg. The inflamed leg was treated with cold saturnine lotion; but a warm poultice was applied to the tumour, in order to bring on suppuration as soon as possible. The case went on favourably; and in three weeks she was able to go about quite well."

No cases of enlarged bursæ have attracted more attention than that of the great toe; when painful and enlarged, it is difficult to treat, for reasons I have partly explained. So much confusion prevails in surgical works, as to the true nature of the proper method of treatment of this troublesome bursa, when enlarged and inflamed, that I may hope to be excused, if I again direct attention to it. The bursa situated on this part may become enlarged and painful, like any other superficial bursa, and require, for its relief and cure, the treatment I have recommended. But that which, in a peculiar manner, complicates the pathology of this enlarged bursa, is the accidental deformity caused by a projection inwards of the digital extremity of the first metatarsal bone. The phalanges of the great toe itself turn outwards to such an extent as to overlap, or pass under, those of the second—a deformity, in fact, amounting to all but complete dislocation. As the metatarsal bone recedes more and more from the second, the digital extremity seems to enlarge, causing a remarkable prominence inwards of this part of the foot.

In the mean time, as the deformity increases, the bursa is placed daily under pressure, more and more severe; the same shoe no longer fits the form of the foot, now much broader in the distal extremity of the metatarsal region; the bursa enlarges, and becomes extremely painful. A succession of bursæ form on the same spot; they open, and perhaps suppurate; and cases are stated to have occurred in which the joint itself has been laid open, and caustic applied to the inner projecting portion of the metatarsal bone, as if it were of morbid growth.

The disease, then, in its most aggravated form, that is, when complicated with this deformity, consists, simply, in an inflamed bursa, generally produced by pressure, with a partial dislocation of the great toe, mainly dependent on a displacement inwards of the digital end of the metatarsal bone. As these two affections are quite distinct, though often confounded, I need not here inquire as to the causes giving rise to the deformity. It will be sufficient to observe, that tight shoes, or rather shoes no longer fitting the altered form of the foot, however they may give rise to an enlargement of the bursa, in no case produce the deformity; for it is now universally admitted that the deformity is most frequently congenital, or comes on in very early life; that it occurs in hundreds who never wore shoes or boots, and that, even when present, it does not necessarily give rise to enlarged bursæ. The cases which most frequently come before the surgeon occur in persons who get the deformity after the meridian of life. The deformity takes place as a result of the weakening of those structures binding together the metatarsal bones; the larger one recedes from the second, and the muscular forces, acting on the great toe, assist in adding to the deformity, by causing it to approach the others. The treatment of such complex cases is exceedingly difficult. It is here that rest, in the recumbent posture, becomes absolutely necessary; the inflammation must be subdued, or allowed to subside. Should a corn have formed on the enlarged bursa, it had better be cautiously pared down, as the skin has probably become much thinner over the bursa. When the foot has become tranquil, other questions arise as to the treatment, chiefly bearing on the form of the shoe; a boot, properly made of very soft leather, such as is worn in France, may be used without aggravating the complaint. Shoes, I apprehend, are bad, as they necessitate a

somewhat tight ligature over the instep; this causes intense pain immediately below it, or nearer to the toe. In time, the integuments may and do become accustomed to the form of the foot, and the bursa no longer enlarges. This, I think, is the ordinary course of events, even in cases by no means unfrequent where the deformity has proceeded to its greatest extent. When the deformity is natural to the person, the bursæ do not naturally enlarge, and therefore give little or no trouble.

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39. *Treatment of certain cases of Hare-lip.*—[E. A. Lloyd, Esq., in a clinical lecture on surgery, lately delivered at St. Bartholomew's Hospital, related the two following cases of complicated hare-lip, which were highly interesting from the successful application of a new mode of overcoming the difficulties met with in some complicated cases.]

Case I.—*Hare-lip, with a large portion of the superior maxillary bone projecting through the fissure, cured by operation.*—The child, Eliza Fisher, was admitted in Sept. 1849, during the time I was absent from town, and when Mr. Paget was attending to my patients in the hospital. On my return she was handed over to me in a most emaciated state, perfectly pallid, and with patches of eczema impetiginodes on different parts of the face and body, with diarrhœa, very little appetite, and altogether in such a miserable state that no one would have been justified in performing any surgical operation at that time.

A large portion of the superior maxillary bone was projecting through the cleft of the lip; not perpendicularly in the natural position of the bone, but turned upwards and forwards, and projecting horizontally, in a direction nearly at right angles with the normal position of the teeth. The fissure extended through both hard and soft palate. The state of the child's health was at that time so bad that it was little expected there would ever be an opportunity of performing an operation. But, in a short time, by the employment of appropriate medicines, the diarrhœa was checked, the condition of the stomach improved, the appetite increased, and the cutaneous disease subsided. The cod-liver oil was freely administered, and, in a few weeks, the health of the child was so far improved, and it gained so much flesh and strength, that it was considered means might be commenced to obviate the deformity without any risk. Before uniting the fissure in the lip, it was necessary to get rid of or change the position of the projecting piece of the superior maxillary bone. The practice in this hospital has hitherto been to cut off the projecting part; but this plan leaves a gap in front of the bone which is never filled up, and which remains a deformity for the whole of a patient's life, and interferes materially with the power of articulation.

In order to obviate this inconvenience, it was attempted to push the portion of bone back into its proper place, by keeping continual pressure on it by means of a pad. This plan was tried for several weeks, but it failed entirely. I then determined to forcibly break down the piece of bone with a strong pair of forceps, to bend it into the gap, and leave it to become fixed there. This was easily accomplished, the soft parts having been previously divided. A small compress of lint was placed over the part so as to confine the bone in its new position, and kept in its situation by means of adhesive plaster.

No bad symptom whatever followed this operation, and the piece of bone was easily retained in its new place, and in about a fortnight it became firmly fixed there. By this means the gap in the superior maxillary bone was entirely filled up. The ordinary operation for hare-lip was now performed; viz., the edges of the fissure in the lip were pared, and the two even surfaces were brought together in the usual way with hare-lip pins.

There was some considerable difficulty, however, in doing this, for the nose was twisted; also one side of the fissure in the lip was much longer than the other: so that in order to adjust the edges properly, it was necessary to pare the edge of the shorter side of the fissure in such a manner as to make the raw surface of a convex form; thus leaving a surface on the shorter side of sufficient length to unite to the whole of the longer edge of the fissure.

The uppermost hare-lip pin was discharged by ulceration on the third day, which resulted from the great force required to bring the parts into contact at

the time of the operation; and in consequence of this a small aperture was left.

The other pin was allowed to remain two or three days longer; and when it was removed the two raw surfaces were found to have firmly united below, but the aperture left by the ulcerating out of the upper pin still remained. The edges of this aperture having healed, it became necessary to detach the cuticle from them, and then bring them into contact as in the first operation.

I have always found that strong liquor potassæ is the best caustic to apply in these cases, for the purpose of detaching the cuticle; and in this case it was applied. The two raw surfaces were kept in contact by means of a long strap of adhesive plaster passed all round the head and above the ears, the two ends being crossed over the wound in front.

It is necessary to pass the plaster all round the head, otherwise it will frequently slip, and thus fail in keeping the two sides of the cleft in continual contact with each other.

I have never known this plan of treatment fail in any case. In a few days the aperture was perfectly closed, and the child left the hospital, not only cured of its unsightly deformity, but likewise in the enjoyment of a good state of health.

Ol. jecoris aselli was continued with marked benefit during the whole of the time.

The next case I will relate to you was certainly the most unsightly instance of this deformity I ever met with, and one in which the plan of breaking down the projecting piece of bone, instead of cutting it off, was perfectly successful; and a most satisfactory cure was the result.

Case II.—*Double Hare-lip, with the central portion of the superior maxillary bone so elevated as to make a right angle with the rest of the jaw, cured by operation without cutting off the bone.*—In this case, which came under my care at the hospital a few months ago, a portion of the superior maxillary bone, about half an inch in breadth, with a portion of the lip attached to it, was projecting upwards and forwards, at right angles from the natural position of the bone, carrying with it the septum nasi, and thus elevating the nose in an extraordinary way, the alæ nasi being at the same time widely spread out.

This elevation of so large a portion of the front of the face caused a deformity so hideous that the "human face divine" was scarcely recognizable. So dreadful, indeed, was this deformity, that to remedy it by any operation was almost despaired of.

But I determined to make the attempt, even in this case, feeling assured that all cases of hare-lip, however bad they may be, can always be considerably relieved by operation.

I therefore strongly advise you to operate in all cases that may be placed under your care.

This child was also in a most emaciated state; it was brought up entirely by hand; the nature of the deformity rendering it impossible for the child to take any of its food in the natural way.

As the means most likely to afford support and strength to the infant, cod-liver oil was given at first, in doses of one drachm, three times a day: but it was, after a week, increased to two drachms. This having been continued for three weeks the child's health was so much improved, that I determined to break down the projecting piece of bone.

I should tell you that, during the whole of this time, Mr. Ayre, one of my dressers, on whose diligence and attention I can most implicitly rely, had attempted, by slight pressure continually applied, to press down the projecting piece of bone; but this was of no more use than in the case I have just related to you. I first dissected up the central portion of lip from the projecting piece of the bone, and then with a strong pair of forceps broke the bone, and forced it down into the gap. After this was accomplished, a pledget of lint was placed on the broken piece and confined there by means of sticking-plaster carried round the head and face, so as to prevent the bone from again projecting, having previously raised up the piece of lip which I had detached.

The bone having, in a few weeks' time, become firm in this position, I ope-

rated on one side of the lip in the usual way, and brought the edges together by one common suture and one hare-lip pin. There was not room for two pins.

This operation was quite successful, and in about three weeks I determined to operate on the other side. Here a difficulty presented itself, the edge of the fissure on one side being much longer than that of the other, the shorter side being that of the central portion of the lip. The pairing, therefore, of this edge was carried to a certain distance round the lower extremity. By this means the two raw edges were made of the same length, and brought accurately into apposition.

The edges of the cleft readily united, and the patient is now quite recovered, and, instead of being a hideous object, is now a really good-looking child. The nose, too, which was flattened at first, is at present much more prominent.

The child will be brought to the consulting room to-morrow, when you may have an opportunity of judging for yourselves of the success of the operation.

I never saw so much projection of the bone as in this case.

In cases of very young children, I recommend you always to try pressure for some time when the bone is projecting. It may not unfrequently be reduced by that means, and, in proof of this, I could, if it were necessary, adduce many cases.

On no account cut off the projecting piece, for, although the highest authorities have recommended that practice, I feel convinced that it is quite unnecessary, and that by so doing you will render the articulation of the patient imperfect for his whole lifetime ; and, in many instances, much deformity will result, from the falling in of the lip, there being no support for it.

Although, indeed, by the removal of the part, you accomplish your object in one operation, that slight advantage should not be considered when the patient's comfort for life is at stake.

We frequently see persons who have been operated on for hare-lip, with a small V-shaped cleft remaining at the bottom, when the paired edges have not united. This, I imagine, arises from the parts retracting below the lower needle, and not being kept in contact long enough to enable them to unite. I therefore advise you, in order to obviate this, in all simple cases of hare-lip to make both the raw surfaces of a concave shape ; and by this means you will leave a sufficient quantity below the lower needle to allow for a certain degree of retraction, without a gap in the margin being left. This mode of proceeding I have followed in the hospital for many years.

There is another plan which I have also sometimes adopted to prevent a notch remaining in the lower margin of the lip. I leave portions of what I slice from the edges of the fissure attached to the inferior angles of the fissure ; turn them down with these raw surfaces opposed to each other, and confine them in that situation. By this proceeding, instead of a notch being left, the central portion of the margin of the lip may be made to project. It is many years since I first had recourse to this proceeding.

Sometimes the edges of the fissure are so far apart that it requires great force to bring them together, and in these cases they will not readily unite. It is therefore necessary to separate the parts very freely, and far back on either side ; and I have met with cases in which the deficiency of lip has been so great that there was no possibility of keeping the edges of the fissure sufficiently in contact without making a perpendicular incision on each side of the lip, commencing at the outer side of each of the alæ nasi. By this means you will always be enabled to bring the edges so easily together that they will readily unite. The incision should not be carried through the membrane of the mouth, but merely through the common integument and muscles. It will sometimes suffice to make an incision on one side only. This cut generally heals readily, and little or no mark remains.

When the surfaces have not united, although the pins have been taken out or have discharged by ulceration, the edges may be readily kept in contact by a long narrow piece of plaster, bound round the head in the way I have described.

Bandages of various kinds have been recommended for this purpose, and

were formerly much used in this hospital; but I think the plaster a far more certain application, as it is less likely to slip, and is much more easily applied.

The coronary artery will sometimes bleed very freely, but it should never be tied, for the presence of a ligature would necessarily impede the healing process, and thus render the cure more tardy. But it is of course of great importance to lose as little blood as possible in all operations on children. I therefore always pass the pins through the two sides of the lip as quickly as possible, and then draw the parts together by the twisted suture, without wasting any time in trying to stop the bleeding, for that will always cease when the parts are thus brought together.

With regard to the age at which this operation is best performed, there has been great difference of opinion; but, so far as my experience goes (and I have operated as early as three weeks and as late as the twenty-first year), I do not think, in simple cases, it makes much difference. In the more complicated cases, the operation should always be performed at the earliest period.

I should, however, avoid, as far as possible, the period between six months and two years, because dentition is then going on. As a general rule, I think that the earlier you operate the better; for the most successful case I ever had was in a child, as stated above, only three weeks old.—*Medical Times*, Feb. 1, 1850.

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40. *Excision of the Head of the Femur.*—Mr. Haynes Walton read a paper on this subject before the Medical Society of London, December 14, 1850. After remarking upon the diversity of opinion concerning the propriety of this operation, the author said, the leading question was, at what stage of the disease the operation should be performed. There were two considerations to be taken into account: 1, the local; 2, the constitutional. With reference to the first, he thought, when the discharge was excessive, thin, dark, and of bad odour; in respect to the second, when there was much hectic fever. If, on examination, disease of the internal organs could not be discovered, especially of the lungs, the operation should take place. There was a question whether disease would not sooner or later come on in these from the effects of the local disorder upon the constitution, if the local mischief were not removed.

The author did not consider the acetabulum to be so often diseased in morbus coxæ as the head of the femur; and that, when diseased, it had greater power of reparation.

He believed non-dislocation of the head of the femur to be diagnostic of soundness of the acetabulum; and that, by exploratory incision, or by passing the finger through a sinus, the state of the acetabulum might often be discovered. If there were no disease in the acetabulum, the operation would most probably be successful, although cases had turned out well where there had been disease in that portion of the joint. Out of fourteen cases, twelve of which had been collected from different sources—the other two having occurred in his own practice—six had proved fatal: one had died from renal disease, another from hemorrhage from the profundic vein, another from diarrhœa: the cause of death in the other three was not given.

The operation was in reality much less severe than it appeared to be: the wasted state of the parts facilitated the operation, while the loss of blood was remarkably small.

The author did not advocate removal of the trochanter as well as the head of the bone. The long interrupted splint was the best apparatus to apply after the operation.

Mr. B. Travers gave great weight to the opinions of Cooper, Cline, and Hunter, all of whom were averse to the performance of the operation in question. He thought that confidence should be placed in the reparative powers of the body, and that, if the case were really curable, the operation would not be required. Even if the operation were successful, the limb was of but little service. From all he had read, heard, and seen, he was of opinion that the successful cases would have got well without interference with the knife. The specimen that had been handed round showed attempts at reparation had been made in those where the operation had succeeded.

Mr. Dampier agreed in the main with Mr. Travers.

Mr. Clarke did not consider a case to be cured even if the patient lived twelve months after the operation, and that death was hastened by the operation.

Mr. Chalk spoke of the difficulty of diagnosing this disease from lumbar and psoas abscess, and questioned if the disease were removed with the head of the bone.

Mr. Gay could not coincide with Mr. Travers; the process of reparation in bone was so tardy that the knife should be employed to assist nature, and that by its use much constitutional irritation could be spared the patient. He would not advise the use of the knife when the manifestation of scrofulous disease was very active.

Mr. H. Smith mentioned the result of some successful cases. One, a boy, æt. 13, operated on in 1845, was now hearty and active, and could walk from Holloway to London. Another, operated on two years ago, a female, æt. 13, was seen yesterday by him, and found in a very comfortable condition, and could walk a mile without assistance. Both were Mr. Fergusson's cases. Another (Mr. Morris's of Spalding) case, operated on in 1849, was quite well, had perfect motion with the thigh, and could walk a short distance.

He had seen mistakes made concerning the position of the head of the bone, and the operation given up in consequence after the first incision had been made. The operation was advisable, because, by preventing anchylosis, the mal-position of the limb was obviated.

Mr. Lloyd had paid considerable attention to the operation in question. In some cases, but very rare ones, the operation was to be performed: he had seen patients who had died from the effects of the profuse suppuration solely; no disease could be found in the internal organs. He thought that most cases of the disease commenced as synovitis, and not from scrofulous deposit in the head of the bone, which latter cause of disease he looked upon as unfrequent.

Mr. Coulson was of opinion that hip disease was generally of a scrofulous origin, and as amenable to constitutional treatment; that the operation should be put in force at the last stage of the disease, when all hope of recovery by other means was given up; that the constitutional disturbance was not due to the local malady, but both had the same origin.

He stated that four post-mortems at the Margate Infirmary had shown the acetabulum to be extensively diseased. In respect of the cases brought forward by Mr. H. Walton, he thought the operation should not have been performed in many of them.—*London Medical Gazette*, December, 1850.

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41. *Case of Ovariotomy; Spontaneous Disappearance of Ovarian Tumours.*—George Norman has recorded, in the *Provincial Med. and Surg. Journal* (Jan. 8th, 1851), an interesting case of ovarian tumour, in which he attempted extirpation, but was unable to succeed in consequence of extensive adhesions, and also alludes to some very interesting cases of spontaneous disappearance of similar tumours.

The subject of the case was twenty-three years of age. When admitted into the United Hospital, 19th Sept., "the tumour appeared to be nearly as large as the head of a child at birth; it was quite movable in the abdomen, and appeared to be attached below by the broad ligament of the uterus, for no doubt was entertained of its being a tumour of the right ovary. It was firm to the touch and gave no sense of fluctuation; her general health had much given way; she had pain extending over the abdomen, and at times severe cramps in the bowels; a fold of vagina protruded full two inches beyond the external pudendum, even when in the recumbent position, and she had endeavoured in vain to keep this up by a pessary before her admission. It was with great difficulty the os uteri could be felt; after a considerable examination, it was found under the arch of the pubes. She was kept in bed, took iodide of potassium, and used iodine frictions to the abdomen, still the tumour increased in size and the pains in intensity.

"The case was considered, by my colleagues and myself, to be an ovarian tumour, and that if ovariotomy were ever advisable, this patient's case was one

calling for it. The prolapsed state of the vagina, the weight of the tumour, and the continued pain, rendering it impossible for her to do anything for her support; the tumour was increasing, and there seemed to be no hope of its growth being arrested. It was agreed that she should discontinue all remedies for a fortnight. At the end of that time her general health had not improved and the tumour appeared to be as large as the impregnated uterus at the fourth, or between that and the fifth month. I then explained to the patient the nature of the disease, told her that an operation had in some instances been successful in the same disease, but that the risk was great and the result doubtful. She replied that she had expected I should make the proposal to her, that she had quite made up her mind, and was ready to undergo the operation whenever I thought proper. A delay, however, occurred from her expecting to be unwell in two or three days, and it was not desirable to operate at or near that period. She became unwell, and after ten days the operation was fixed for the 8th of November. She left off meat for a few days before, and took a mild aperient. Fires were kept for two or three days in the operating theatre, and also in a small ward adjoining it, where it was intended she should remain after the operation, and where she was directed to go to bed the morning of the intended operation.

"At twelve o'clock on Friday, the 8th of November, Dr. Davies, who kindly undertook to manage the administration of chloroform, put her fully under its influence in her bed, apart from all those assembled in the theatre adjoining. In a state of perfect unconsciousness, she was brought into the theatre, and kept in that state during the whole time she remained there. An incision was made in the linea alba, about five inches in length, commencing an inch above the umbilicus, and avoiding that, it was extended downwards towards the pubes. The periosteum was raised with a pair of forceps, and opened to nearly the same extent; instead of any part of the tumour appearing, several convolutions of the small intestine protruded; these with some little delay were returned into the abdomen with great adroitness, by my colleague Mr. Gore, and retained there. During that time, I had ascertained that the anterior parietes of the abdomen adhered very considerably, and firmly, to the tumour on each side of the incision; also that the adhesions below were considerable, and apparently insurmountable, and it was then discovered that a portion of the small intestine, full two inches in length, adhered firmly to the anterior part of the tumour. All hope, therefore, of removing the tumour being gone, no time was lost for the purpose of ascertaining its precise nature, but the integuments were brought together by five common sutures, straps of adhesive plaster were applied, some folded lint placed over with a bandage, and she was removed to her bed in the same state of unconsciousness as when she was brought from it. I saw her four hours after; she was then recovering from the effects of the chloroform, but was suffering from sickness, and pain in the abdomen. Pulse 115, of good strength and fullness. The patient, after continuing in jeopardy for a few days, recovered.

"On the fifteenth day after the operation, it was ascertained that there was no protrusion of the vagina, and it appeared to me on examining the abdomen that the tumour was not of the same size as it was at the time of the operation. The lower part of the wound still remained open, but the quantity of discharge was too small to admit of supposing it came from the tumour. The diminution was supposed to arise from the total abstinence from food for some days, the low diet afterwards, and the constant recumbent position. After this time, it appeared to me that the size of the tumour was gradually diminishing, although she was taking animal food, and by the end of November it was quite evident that the tumour was not more than half its former size. An examination per vaginam was made. The vagina was perfectly natural, and the os uteri was found in the ordinary position. The patient continued to improve, she gained flesh, and her countenance regained the healthy appearance. She was, however, kept to her bed, as the lower portion of the wound was not quite healed; soon after, however, it healed, and she was allowed to get up, from which she found no inconvenience, and she was shortly able to walk about the ward with freedom.

"To account," observes Mr. Norman, "for the very considerable diminution

in the size of the tumour which has taken place since the operation, is a matter of difficulty, and can only be one of conjecture. It may be that a certain degree of inflammation followed the exposure and the handling of the tumour (though there was very little of the latter), and that the vessels of the normal structure of the ovary may have poured out fibrin, and so formed a barrier between the cysts forming the bulk of the tumour and their supply, and this ultimately may have compressed and obliterated them; but be that as it may, the fact of a most important diminution remains, and as the young woman resides in Bath, I shall be enabled to know the more permanent result.

"What has occurred in reference to this tumour may throw some light on cases where such tumours have spontaneously disappeared, of which I believe there are many instances. I had an opportunity of ascertaining one recently. A lady whom I had examined several times nearly twenty years ago had an ovarian tumour full as large as the one we have been considering. I saw her a fortnight ago on another occasion, and had the opportunity of examining the abdomen; I could find no trace of the tumour; her account was that the tumour had remained for some years as when I had examined it, that in the last few years it had gradually diminished, that latterly she could only occasionally find it, and that it was very small. I did not find it, but it may be that, being small, it remains for the most part in the cavity of the pelvis, and she described symptoms which made that probable, but it was not admissible to make an examination per vaginam, to investigate it. Another case has been recently told me by Dr. Robert Ferguson, of Park Street, Grosvenor Square, of a lady who consulted him for an ovarian tumour, of considerable size, and in whom, on her returning to him twelve months after, he could find no trace of it. I know another lady, whose abdomen I had frequently examined, who had a similar tumour full twenty years ago. Sir Astley Cooper also examined it, and gave the same opinion I had given. In this lady, who is now living, it produced nothing more than inconvenience, and if I may judge from the altered appearance of her shape, the tumour must now be very much diminished, but I have had no opportunity of examining it. I have also known an instance where a considerable tumour of the kind formed a communication with the vagina, and after a continued discharge the tumour disappeared, and this person is now living. I know another lady who had for some years a tumour in the abdomen as large as a child's head, which also produced a displacement of the uterus and other distressing and painful symptoms, but which have now entirely ceased, and the tumour became diminished in size. Another instance has been related to me by Dr. Brabent, of a lady who had a large tumour in the abdomen for many years, which always became larger at the time of menstruation, and which gradually diminished after the cessation of that function, and finally disappeared.

"I apprehend the case in which I have operated must be placed as opposed to the propriety of the operation, for if in that case it was not possible to foreknow the existence of insurmountable adhesions, I do not know how anything like certainty can be arrived at; and as this patient's life was certainly in jeopardy for three days, one cannot but think such explorative operations must be attended with considerable danger. Add to this the proportion of deaths after the tumours have been removed, and it will appear probable that the balance will turn on that side. The subject, however, is now fully and perfectly under the consideration of the profession, a great mass of information has been gained, and more will no doubt, for it is to be hoped that every case, whether successful or otherwise, will be recorded, and also those cases of ovarian tumours which have remained harmless, as well as those which have proved fatal, and then we may expect from our profession a dispassionate and correct conclusion."

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42. *Case of Tumour for which the Operation of Ovariotomy was attempted more than twenty-five years ago, with Dissection.*—Dr. Taylor read to the Edinburgh Medico-Chirurgical Society, December, 1850, the case of Magdalene Berry, which had been for twelve years under Dr. Myrtle's observation, and had recently terminated fatally. On dissection, a cicatrix was seen extending from the sternum to the pubes. The abdomen did not appear larger than is usual between the fourth and fifth months of pregnancy. A large tumour was felt,

strongly adherent anteriorly to the abdominal parietes, occupying the lower part of the abdomen, and movable. On opening the abdomen, strong adhesions were found between the cicatrix and omentum. The vessels of the omentum were very large, as was reported twenty-five years ago by Mr. Lizars in his account of the operation, which he attempted for the removal of the tumour. There were firm adhesions between the anterior surface of the tumour and the abdominal parietes, and between its superior and posterior surfaces and the large and small intestines. The peritoneal surfaces of the bowels were adherent at various points. The tumour was found to be a fibrous tumour of the uterus connected with its fundus by a narrow fold of peritoneum. Both ovaries were small, and in their proper position. The uterus was atrophied. There was great softening and dilatation of the heart. The patient, while under Dr. Myrtle's care, was affected with general dropsy. She had derived marked benefit from the use of diuretics and purgatives. Death had taken place from apoplexy. In Mr. Lizars' work on "Extraction of Diseased Ovaries," it is recorded that, immediately after the operation, which it was deemed imprudent to complete, violent inflammatory symptoms supervened, which left permanently well-marked results notwithstanding the abstraction of 111 oz. of blood within thirty-six hours or so after the operation, as well as the administration of antiphlogistic remedies. The actual cautery was afterwards had recourse to, as also a seton drawn through the anterior portion of the tumour and superincumbent soft parts. Dr. Myrtle's communication concluded with some observations on the difficulty of arriving at a correct diagnosis in cases similar to the above.

The president made some observations on the case as an additional illustration of the unjustifiable nature of the operation of ovariotomy. The recovery of the patient, after the multiplied dangers to which she was exposed by the incision, the resulting inflammation and the seton, was very remarkable.

Professor Simpson could not agree with the president in condemning the operation of ovariotomy as in all cases unjustifiable. It had been performed in many cases in which he believed its adoption was unjustifiable; but where the patient was evidently soon to die, in consequence of repeated tappings, or otherwise—and where the question was one of certain and speedy death from the disease, or possible recovery and continuation of life from the chances of the operation—and where, in addition, there was no counter-indication to the operation from adhesions, &c., he believed it might be the duty of the surgeon to afford the patient the chances of escape by ovariotomy; and the actual number of recoveries after the operation seemed sufficient to justify its adoption under such circumstances.—*Monthly Journal of Medical Sciences*, Feb. 1851.

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43. *Femoral Aneurism cured by Compression.*—Mr. Smyly communicated to the Surgical Society of Ireland, November 23, 1850, the following case of femoral aneurism, successfully treated by compression:—

"Patrick O'Gorman, aged 48, a schoolmaster, came under my care in April, 1847, three years and a half ago. He stated that, in August, 1846, eight months before I saw him, when walking at his ordinary gait, he suddenly lost, in a great measure, the use of his right leg, and with great difficulty got on half a mile further. Next day he could not put his foot under him, or leave his bed. He suffered intense pain in the middle of the thigh, in the knee, and down the outside of his leg. It was so severe as to prevent him leaving his bed for a week. It then abated, but has returned occasionally, with more or less severity ever since. He is a married man, sober, and well conducted. He was admitted into the Meath Hospital on the 14th of April, 1847. A pulsating tumour, the size of an egg, having all the characteristics of aneurism, existed in the lower part of the middle third of the right thigh. His general health was good. There was excitement of the circulation, and a slight bruit de soufflet at the heart. In consultation with my colleagues, it was determined to treat this case by compression, so applied as not to interrupt completely the flow of blood in the femoral artery. The patient being bled, and confinement to the recumbent position being strictly enjoined, pressure was made at two different points alternately, by means of two clamps—one applied to the exter-

nal iliac artery, the other to the femoral. This treatment was persevered in with more or less assiduity for nearly three months, with no other advantage than a diminution in the size of the tumour. Weary of the restraint, he desired to leave the hospital; and as he fully understood the use of the instruments, and the plan to be pursued, he was permitted to go out. He was then appointed schoolmaster to the National School at Blackrock, and continued to fulfil his arduous duties for about three months, when, having walked a distance of two miles, he suddenly felt a severe pain in the tumour, extending down the leg. The pain continued unabated for two days, and then gradually subsided. Seven days after the occurrence of the severe pain, he called upon me. On examining the tumour, all pulsation had ceased. This he found to have taken place two days ago, the contents of the tumour to have become consolidated, and all pain to have disappeared. Three months after the cessation of pulsation, I had an opportunity of examining the patient: the tumour, though diminished in size, was still to be felt about as large as a walnut, and very hard.

"November 15, 1850, I called upon him, and found him in the enjoyment of good health, equal to perform the duties attendant upon the management of a large school. A very small hard tumour is still traceable at the seat of the aneurism, and pain is sometimes felt down the outside of the leg. On examining the heart and large arteries, no morbid sound is audible; they are apparently free from disease."

Reflections.—1st. When we consider the protracted period required to accomplish a cure in this case, we learn not to abandon hopes of a cure when our efforts are baffled, and prove unavailing, even for six months.

2d. We find the excitement of the circulation and the bruit de soufflet to subside and disappear on the cure of the aneurism just as similar sympathetic affections are relieved when the cure is affected by ligature. This case, then, meets the objection urged against the treatment by compression—viz., that disease of the heart is more likely to attend it than when a ligature is applied; for we see the same beneficial result follow the cure of the aneurism in this as in those cases cured by ligature.—*Dublin Medical Press*, December 11, 1850.

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44. *New Instruments for the Cure of Stricture.*—Mr. Thomas H. Wakley exhibited to the Medical Society of London (Jan. 25th, 1851) a set of new instruments for the cure of stricture of the urethra. He remarks, in submitting the instruments to the consideration of the Society, that the subject of the treatment of stricture of the urethra had been much discussed within the last year or two, and had given rise to a great deal of controversy. It certainly was not a settled question what should be done in cases of severe permanent stricture. Mr. Syme, the distinguished surgeon of Edinburgh, had, as was known, recommended, where the ordinary means of treatment had failed, the division of such strictures by perineal section. Probably the instruments which he then had the honour of bringing before the notice of the Society would, in some cases at least, render such an operation unnecessary. He had used them in several cases already with very satisfactory results. The instruments he at first used were by no means of a refined or perfect manufacture, yet the advantages obtained were of a decided character. The instruments he now produced had been manufactured by Messrs. Weiss & Co., and, as might be expected, they were very perfectly executed. They consist of—

1. A catheter, thirteen inches in length, of a very small size, slightly curved at the extremity; the stem quite straight, and having at the end a worm for the reception of the screw of the directing-rod.

2. A small thumb-slide (removable at pleasure), screwing closely upon, and acting as a handle to, the catheter.

3. A steel rod, which passes into the catheter as far as the screw, at which part both are united by two or three turns of the rod. The rod makes an addition of five inches to the length of the catheter. The rod and catheter combined form the index-rod, or director, for the metallic and elastic tubes.

4. Of the silver straight tubes, there are nine of graduated sizes; the first is only one size larger than the index-rod, and the others regularly increase in

circumference; the last, or No. 10, corresponding with that number of the ordinary bougie. These tubes are all of a conical shape at their distal extremities, and are so constructed as to fit the mouth of each tube with extreme exactness at the surface of the index-rod. They thus slide with the most perfect ease along that guide, and being directed by it, if the rod be in its proper situation, the tubes cannot take a wrong course or make a false passage, but must pass through the stricture.

5. There are also three *elastic tubes*, composed of a flexible metal, covered with elastic-gum fabrics. This combination gives to the instrument very considerable strength, without rendering it clumsy or bulky. The extremity of each of these flexible tubes has the same form as that of the silver tubes, and fits with perfect accuracy the surface of the index-box.

Supposing, then, that a patient having stricture of the urethra is before the surgeon for operation, the mode of proceeding is as follows:—

First, introduce the catheter, as gently and with as much care as possible, completely through the contracted part of the urethra into the bladder. Having done this, withdraw the stylet, and the surgeon having satisfied himself, by the escape of urine, that the instrument is in the bladder, insert the smaller extremity of the steel rod into the catheter, and having secured it, by making two or three turns of the rod, remove the thumb-slide and then pass No. 3 silver tube upon the index-rod right through the stricture or strictures. In performing this operation, the passage of the instrument will be much facilitated by giving to the flanges a rotatory motion as they are held between the fingers and thumb. This tube being withdrawn, the others may all be passed in a similar manner, and in regular succession. The number to be introduced must of course be determined by the operator. After the last metallic tube is withdrawn, an important object is still to be secured—that of *keeping the command of a free urethra.* How is that to be done? This certainly is a point of considerable importance. Mr. Wakley stated that he was happy to say that it might be accomplished with the greatest ease by passing one of the *elastic tubes* over the index-rod, as was done in the case of the silver tubes. One of the flexible tubes being now in the bladder, *the index-rod is to be withdrawn through it;* this may be done with the most perfect ease and facility. The *flexible tube* may be left in the bladder to serve the purpose of a catheter, and also to afford a safe channel or guide for the re-introduction of the silver catheter or index-rod.

The Society would not fail to perceive that the action of these instruments was safe and simple, and he had the pleasure of stating that the use of them had given him very great satisfaction. The application of the knife for the relief of stricture had been much condemned, although it had been strongly advocated by Mr. Syme, who was undoubtedly a high authority. Still he (Mr. Wakley) could not refrain from expressing a belief that there were strictures which might be removed by the instruments now before him, although Mr. Syme might consider that in such cases the perineal section would be absolutely necessary to effect a cure. Time and experience in the trial of both plans would be required to enable a decision to be formed as to their merits. Mr. Syme had remarked, in a letter published that day, that he had endeavoured to establish two positions: "First. That the division of a stricture by external incision, upon a grooved director, passed fairly through the contracted part, is an operation free from all ordinary sources of danger. Secondly. That, by this procedure, strictures which resist every other mode of treatment are apt to resent seriously even the gentlest use of simple bougies, may be speedily removed so as to allow instruments of the largest size to be introduced without difficulty or inconvenience." The first proposition demanded particular attention, because he thought the plan of treatment now proposed, by tubular expansion, would, in many cases of stricture contemplated by Mr. Syme, render the perineal section unnecessary. If the grooved director mentioned by Mr. Syme could be "passed fairly through the contracted part," of course the small-sized catheter or index-rod now shown could also be guided through the stricture into the bladder. Necessarily, if the one instrument could be passed, so could the other; and the passage being thus secured, the tubes, both metal-

lic and flexible, might be made to take the same course without the slightest danger of making a false passage. In some very obstinate and inveterate strictures, he had succeeded in affording relief, almost without difficulty. Some of the strictures appeared to be of the worst possible form. He was glad to perceive some gentlemen in the room who had been present when the instruments were used at the hospital. Amongst them he observed his colleague, Mr. Gay, who could acquaint the Society with the result of the treatment as pursued in the case of one of his patients. In that instance the man had been treated in the ordinary way, but without success. It was suggested that it was a case which would effectually test the efficiency of the new treatment. The rod and tubes were introduced in the presence of Mr. Guthrie and several other gentlemen. After Mr. Gay had very cleverly, but not without some difficulty, introduced a No. 2 catheter, the metallic tubes from No. 3 to No. 9 were passed without a check. No. 8 elastic tube was then passed on the directing catheter, and the latter instrument withdrawn, leaving the elastic tube in the bladder. He might appeal to Mr. Gay as to the accuracy of the statement. Mr. Wakley believed that in the hands of others the effects produced by the instruments would prove as satisfactory as they had been to himself. At the hospital with which he was connected the opportunities for proving their utility were very frequent, and it would afford him pleasure to show any practitioner who might honour that institution with a visit, the manner in which they were employed. The instruments had been seen by Sir B. Brodie, Mr. Guthrie, Mr. Stanley, Mr. Fergusson, and other distinguished surgeons, who all approved of the principles of treatment which their use involved. In placing the instruments before the Society and the profession, he felt confident that they would receive a fair and candid trial. On a future occasion, he should take an opportunity of offering to the notice of the Society the further results of the treatment.—*Lancet*, Feb. 1, 1851.

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45. *Rupture of the Crucial Ligament of the Knee-joint.*—Dr. Stark relates, in the *Edinburgh Medical and Surgical Journal* for October, 1850, two instances of an injury, which he believes to have been rupture of the crucial ligament of the knee-joint. The symptoms, nearly identical in both cases, were the following: There was no dislocation either of the ankle or of the knee-joint; no displacement of the knee-pan; no rupture of the tendo-Achillis, or of any of the tendons round the knee-joint. The motions of the ankle, and, when the patient was sitting, of the knee-joint, in so far as its ordinary motions were concerned, appeared perfect. In one case, when the patient assumed the erect posture, the knee-joint was found to be preternaturally movable; and, whenever any weight was endeavoured to be thrown on the right leg, the knee fell against the left leg, *and bent with equal facility forwards or backwards.* When the legs were extended, the slightest pressure on the patella caused the foot to be thrown upwards, *and the leg could be bent forwards on the thigh to a certain extent.* No pain was complained of in the knee-joint, but only a sensation of weariness; and there was no redness, nor swelling, nor effusion of blood.

Dr. Stark made several trials on the first patient, to ascertain the accuracy of the diagnosis. When the knee was bound tightly with a handkerchief, and kept slightly bent, the patient could almost bear the weight of the body on it; but the moment he endeavoured to straighten the limb *the knee bent backwards under him*, and he fell to the ground unless supported. The lateral motion of the tibia on the thigh-bone, though freer than usual, was yet so very limited that there was no reason to conclude that the lateral ligaments were injured.

The treatment consisted in fixing the limb in a nearly straight position, just so slightly bent as to allow the flexors of the leg to have a slight advantage over the strong extensors attached to the patella. A strong flat steel spring, fourteen inches long, with a slight curvature, was softly padded and bound to the back of the knee-joint, half of its length projecting down the back of the leg, half extending along the back of the thigh. The foot and leg to above the knee were then bandaged moderately tight. The injury was ultimately recovered from in both cases; but the knees remained weak, and the patients had to use support for a considerable period. In one case it was five months, in

the other three months and a week before the use of crutches could be dispensed with.

Dr. Stark thinks these cases interesting from their rarity, and from their proving that the injury in question may be perfectly recovered from. He infers that cure must have been finally effected by a reunion taking place between the ends of the ruptured crucial ligaments.—*Lond. Jour. Med.*, Dec. 1850.

46. *Cotton Wadding as an Application to Bed-Sores and Varicose Ulcers.*—In the treatment of wounds and ulcers, one great indication is to protect the parts from exposure to the air. Adhesive plasters, and especially collodion, often serve this purpose, but are inapplicable where a large extent of surface is exposed. In these cases we believe the application of cotton-wadding to be an effectual means of fulfilling the indication. Mr. Robert Jones, of Conway (*Lancet*, Sept. 27, 1850), relates the case of a girl, aged 16, who had been suffering from typhus fever, and who had an extensive sloughing sore of the nates, with profuse and offensive discharge. Wine and bark were prescribed, and broth and beef-tea given. Mr. Jones applied some cotton-wadding to the part, with a view of giving her a soft cushion to lie upon, as well as to absorb the abundant discharge. After the application she appeared much relieved. On examination, three days after, the parts covering the spine and the crest of the ilium were granulating, the slough covering them had partially separated, and the parts beneath were looking very well. Mr. Jones has also treated successfully a few cases of varicose ulcers of the lower extremities, by the application of cotton-wadding. The manner of applying it is simply to cover the ulcer, and to dress the patient every second or third day, a roller being applied over the cotton. Perfect quietness, and keeping the limb in the horizontal position, are enjoined; and three weeks or a month are generally sufficient for a cure.—*Lond. Med. Jour.*, Dec. 1850.

OPHTHALMOLOGY.

47. *Preparatory and After-treatment in Cataract Operations.* By Arthur Jacob, M. D.—The value of preparatory and after-treatment as part of the surgeon's care in cataract operations has been fully appreciated, and, in practice, amply made available; but the value of a respectful consideration of all the functions of the animal economy upon which health depends has not been so well understood. It is assumed that a patient should be prepared for an operation by taking physic and abstaining from food, yet a rational man, acquainted with the consecutive operation of each apparatus provided for the growth, repair, and preservation of the living being, may well doubt the correctness of such a view. The universal faith reposed in the practice of giving and taking physic has led practitioners not only to place too much reliance on that resource, but to resort to it sometimes to the injury of the patient, as I find in the case under consideration. In preparing a patient for operation, I do not act on the belief that empty bowels are essential to health, or that what are called *feces* should not be found in the intestinal canal; on the contrary, I proceed on a conviction totally different. If a patient be in good health, notwithstanding an habitual retention of the contents of the bowels beyond the prescribed periods, I do not wish to risk an interruption of health by disturbing the natural functions of the stomach and bowels, and I therefore refrain from giving physic. But if the patient be not in good health, I of course endeavour to bring him into that condition by every means in my power, and resolutely resist every attempt to induce me to operate until I have accomplished that object. Above all things, the state of the digestive organs should be carefully studied, and if found defective, if possible, repaired. Nothing seems to require more attention than the state of the tongue as indicative of the state of the stomach and bowels. If it be white, or coated with discoloured adhesive mucus, the functions of assimilation and nutrition are probably imperfectly performed, and a resulting tendency to destructive inflammation from local injury is engendered.

This I see every day exemplified in accidental injuries of the cornea in stone-cutting, and in chipping and turning metals. If the patient has a clean tongue, and is otherwise free from disease, little inflammation, and still less of destructive inflammation, follow the injury: but if the tongue be coated with a thick yellow adhesive layer, ulceration and formation of purulent matter often ensue. In preparing a patient for operation for cataract, this will therefore demand the first care of the surgeon; especially if he finds, as he often does, a deposition of lithates or other salts in the urine. He will also make inquiry as to the state of the discharges from the bowels, as to their colour, consistence, and proportion of undigested materials, and also as to the frequency of discharge; not looking upon what is called costiveness as evidence of deranged digestion, but rather the reverse: undigested food seldom remaining so long quiet in the alimentary canal as the insoluble remains of thoroughly digested aliment mixed with the excrementitious part of the bile. This inquiry is not, however, so easily made as those who are satisfied with loose statements suppose, and many may think it unnecessary; but convinced as I am that attention to this matter is necessary for the success of the operation, I dwell upon it. Every practitioner has his own way of correcting this derangement of the digestive organs; it would therefore be superfluous to enter here into details on the subject. I myself generally rely on a moderate purgative pill with blue pill or calomel at night, followed by some aromatic bitter infusion, containing a little alkaline salt, in the morning and middle of the day; at the same time regulating the diet by restricting the quantity and quality of the food, as well as the periods at which it should be taken. It is usual, in preparing for this and other operations, to make great alterations in diet, substituting liquid for solid, and vegetable for animal aliments. This, however, must be done with caution, leading as it inevitably does to disturbance of the digestive function and interruption of the assimilating and nutritious processes, if suddenly or exclusively adopted. Without digestible nutritious food, good chyle and blood cannot be produced, and without good blood local injuries are liable to suffer from destructive inflammation. Even in the case of old persons habitually indulging in a glass of wine or other alcoholic stimulant, the suspension of that supply of temporary aid to the nervous system should not be suddenly adopted: in fact, the substitution of "low living," and what are called "slops," for generous diet, should be gradually and sparingly practiced, if practiced at all. In my own practice, I resort to it as little as possible, and from experience feel inclined to resort to it less and less.

In particular cases, the surgeon may be called on to prepare his patient for operation by special direction of remedies to specific derangements of health. Persons of languid circulation and feeble frame must be invigorated by generous diet and tonic medicines, while those of plethoric and bloated habit must be reduced to more suitable condition. Scrofulous or rheumatic constitution or diathesis must, if possible, be corrected; and specific disease of any kind, if present, removed. All this, however, is more easily suggested than accomplished. Scrofula or rheumatism is not so easily eradicated, but it is well, with a view as much to general treatment as to prognosis of the result, that this consideration should be kept in view. When called on to operate on a truly scrofulous or rheumatic patient, the surgeon must be careful to warn the parties concerned that the prospects of complete recovery of sight are less favourable than in cases where the health is good. The after-treatment must be conducted on the same principles as those laid down for the preparatory treatment. The tone of the stomach should be preserved, assimilation and nutrition duly maintained, and the general condition of the patient made comfortable. There is no necessity for immuring a patient after this operation in a close and darkened room. The less of bed the better, and the sooner the drawing-room is made the place of convalescence the better also. With elderly ladies, and especially those of weakly nervous system, this cannot perhaps be so soon done; but the sooner it is done the more rapid and certain will be the recovery. Should inflammation arise, it must of course be arrested, if possible, by the usual means, judiciously adjusted to the constitution and condition of the patient. Indiscriminate purging, bleeding, and mercurializing must not be per-

mitted: but if depletion becomes necessary, it must be carried to the requisite extent, without undue severity. The surgeon should not act on the assumption that, if pain and redness be present, destructive inflammation must be in progress: the pain is generally from the pressure of fragments of cataract on the iris, and the redness often from trivial inflammation of the conjunctiva. Whether it be from this conviction respecting the harmless nature of slight inflammation and pain, or from this operation through the cornea being seldom followed by destructive inflammation, I do not find that I am often called on to draw blood either by lancet or leeches. I am now, however, alluding more to the inflammation which may come on immediately after the operation than to that which may come on at a more advanced period, and which is often of more destructive character, on account of its implicating the whole eyeball; assuming a chronic and sometimes an intermitting, and even a neuralgic character. This inflammation must be treated as other inflammations of the eyeball, and as I have laid down in my treatise on that subject. A strange proposal has been made, probably in consequence of the frequency of destructive inflammation after the *posterior* operation. It has been not only suggested, but actually practiced, to administer mercury to a patient previous to operation, so as to have him in a state of salivation, or on the point of salivation, at the time when inflammation is liable to come on. It is not necessary to warn the surgeon against the adoption of any such puerile application of theoretical assumption. Every one knows that the presence of mercury in the system does not prevent the occurrence of inflammation; and the sooner every one knows that mercury is not so certain an antidote against destructive inflammation as people believe, the better. While considering the after-treatment in this operation for cataract, it is necessary to allude to an occurrence which often takes place, and which causes much distress and alarm both to patients and friends. This is a distressing nausea and vomiting which seizes the patient, generally in the middle of the night of the day of the operation, and continues for many hours, and even more or less during the next day. I attribute it to the pressure of the fragments of the broken-up lens on the iris, and find that it is not followed by destructive consequences; but causing, as it does, so much distress and alarm, I generally order an opiate to be taken when it commences, or direct the attendants to be prepared with some effervescing draughts, and to assure the patient that there is nothing unusual or dangerous in the occurrence. I know not whether this remarkable effect has been observed by others or not, or whether it has been recorded in books, and I have not at this moment time to inquire; but I am sure that I have always noticed it in my lectures. As to local applications, the great object of their use should be to dilate, and keep dilated, the pupil, so as to place the iris more out of the reach of the pressure of the fragments of cataract. This is, of course, to be effected by the application of extract of belladonna; but as there seem to be some mistaken notions prevalent respecting this most valuable and remarkable agent, it may be desirable to correct them. The pupil is, of course, to be dilated previous to the operation, to expose the lens fully and to place the iris out of reach of the needle. Some think it necessary to daub the whole eyebrow, lids, and half the cheek with the black extract, and to leave it adhering to the skin for several hours; some even lay it on the night before. This is a great waste of the medicine, and soils the skin and linen. It is astonishing what a small quantity of this most wonderful agent will dilate the pupil, especially in the eye of a young person. One grain of nitrate of atropia, dissolved in an ounce of distilled water, will form a solution, of which one drop from a camel's-hair pencil will dilate the pupil fully in fifteen, twenty, or thirty minutes: a drachm of good extract of belladonna will do the same. I, therefore, always use these solutions in this way, putting in the drop at any time most convenient in the course of the day on which I operate. The application is neither very painful nor irritating, perhaps about as much as a weak solution of common salt, and leaves no redness after half an hour. I should observe that in aged persons this application of the narcotic to the conjunctiva is sometimes absolutely necessary to secure full dilatation of the pupil. The smearing of the extract on the harsh skin in such subjects will not always effect the object. After the operation,

however, the lids and brow should be painted with the extract to dilate the pupil and keep it dilated; because it may not be desirable to cause any additional irritation by dropping the solution on the conjunctiva. This is a very necessary precaution, for the surgeon should know that, however perfectly the pupil may be dilated before the operation, it generally becomes contracted again during the revolutions of the needle; in fact, mechanical irritation, such as the pressure of the needle or the broken fragments on the iris, causes that organ to act and the pupil to return to its original dimensions. This is a remarkable physiological fact, which I have not seen recorded, but which I have for many years demonstrated in the operation theatre. By way of dressing, I leave a lotion containing a couple of drachms of good extract of belladonna in eight ounces of water, to be constantly applied as a water-dressing with a small scrap of old linen as light as a feather, but I strictly interdict all tying or bandaging, and direct the attendant to allow the rag to fall off when the patient turns to sleep.—*Dublin Med. Press*, Aug. 28, 1850.

MIDWIFERY.

48. *Case of Protrusion of the Hand of the Child through the Walls of the Vagina and Rectum in a case of Head Presentation.*—[Dr. James Gray read before the Edinburgh Obstetrical Society (Dec. 11, 1850) the following instance of the protrusion of the hand of the child through the walls of the vagina and rectum (without injury to the perineum), in a case of common head presentation, which is so rare, if not unique, in its occurrence, as to deserve being placed upon record:—]

On the evening of the 26th February 1850, I was summoned to attend Mrs. Y. in her first confinement. She resided at a distance of twelve miles from my residence in Perth. I found her in bed suffering from a severe expulsive pain. The cry which escaped her led me at once to make an examination. In doing so, I discovered, as I thought, the head of the child partly born, and covered, as is not unfrequently the case, by the membranes. After the pain subsided, I had time to make a more careful examination. The os externum was found to be thrust forwards and upwards to the front of the pelvis; the perineum greatly distended; the orifice of the rectum dilated considerably—exposing its mucous surfaces to the extent of an inch. The head presented in the second position; the membranes were entire. On introducing the index finger of the right hand into the rectum, I found that one of the child's hands lay upon the right cheek. Another pain soon followed, more fully stretching the perineum and opening the anus; without, at the same time, affecting the outlet of the vagina. To prevent the perineum from being injured, I placed the palm of my right hand over the anus and perineum, carrying my fingers into the vagina so as to prevent the too sudden expulsion of the child. While thus engaged, I felt that something had given way; a gush of fluid followed, and a pressure of something solid against the palm of my hand. This I found to be one of the hands of the child, which had protruded itself through the walls of the vagina and rectum a little above the verge of the anus. The pain returning, I expected every moment, from the state of the parts, and from the powerful efforts made, that the perineum would give way. This was prevented by still carefully supporting the parts, retarding by counter-pressure the progress of the child—and thus giving time for the external parts to relax, which in the course of half an hour took place. The head, consequently, was gradually expelled, and as it emerged under the arch of the pelvis, the hand also descended through the opening in the walls of the vagina and rectum, as described above, until it hung over the left nates of the mother. With the shoulders another difficulty now presented itself: this I managed by pulling the arm in the direction of the spine of the mother, and guiding it through the aperture with my left hand; while, at the same time, with my right I supported the head, and carried it forwards and upwards during the continuance of a pain. The shoulders were soon expelled, and the child was safely delivered. The

cord was tied, and in ten minutes the placenta came away. A bandage, with a pad attached to it, was applied round the abdomen. On the injured part being examined, the rent appeared to commence a little above the verge of the anus, and to extend upwards for about half an inch; but the muscular fibres of the rectum had contracted, and reduced it to a mere fissure. It was carefully cleaned, and a piece of lint introduced into the vagina, to absorb the discharge and prevent it from passing between the lips of the wound. At the end of an hour I left her, with strict injunctions to keep herself quiet, and not to move about in the bed. Next day I learned that she had passed a comfortable night, and was as well as could be expected. She went on gradually improving; the feces were expelled *via naturali*, not in the least tinged with blood. In the course of three weeks she was able to be up a little. Since then I have seen her frequently, and she expresses herself as being quite well.

The circumstances most worthy of remark in this case are—1st. The unfavourable position of the hand of the child. This, in a female who has had several children, would not have been attended with anything peculiarly dangerous; but with a woman who is in her first confinement, the case is otherwise. There is then a great retardation of labour, and the danger of rupture to the perineum. 2d. The unusual position of the posterior commissure of the os externum. This commissure was thrust forwards by the head of the child to the inferior extremity of the symphysis of the pubis, so that the vulva was thereby very much diminished. I have observed that, in many first cases, the external parts are carried forwards; but in no other case that has come under my notice have I observed so great an alteration from the natural position. The state of the anus is also deserving of notice. It was dilated to a size considerably above that of a crown piece—the mucous surface of the rectum being exposed and carried downwards, so as to be in a line with the perineum.

Lastly, there is the protrusion of the hand through the walls of the vagina and rectum; the subsequent closing of the lips of the wound; and the healing process advancing without leaving any fistulous opening between the two canals. This last particular is rarely the result without the aid of a surgical operation.

The treatment adopted consisted in the application of a lotion of the sulphate of zinc, attention to the bowels, and strict rest in the horizontal position.—*Monthly Journal of Medical Sciences*, Jan. 1851.

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49. *Central Laceration of the Perineum.*—Dr. Thatcher read to the Edinburgh Obstetrical Society (Dec. 11, 1850) the following case of this character. Mrs. C., in her first pregnancy, had been in labour for some hours previous to her sending for me. The first stage was over, and the head advancing correctly in the pelvis, and nearly on its outlet. The parts were well relaxed; the pains moderate; but the patient, unhappily, most restless and impatient—in fact scarcely controllable. The sacral part of the vagina appeared much *deeper* than natural, and the head was constantly pressing backwards forcibly, as if wishing to be extruded through the posterior part of the perineum and anus, instead of the superior and natural direction. As the perineum distended, it was quite evident that it was unusually elongated; the *set* of the pelvis reminded me much of that of the Hottentot Venus, pressing pubis and sacrum *out* of the ordinary line. Every exertion was made to guide the head superiorly to its proper position by the fingers, but this was of little use; and before the forceps could be employed, a sudden terrific pain, aided by the *over-exertion* of the patient—to my surprise and great distress, and despite of every retarding exertion—forced the head through the perineal space, between the lower commissure of the labia and the anus, keeping the lower frænum of the labia entire, as also, fortunately, the sphincter ani. The body was extracted in the same manner, as also the placenta. The patient was told that she had hurt herself by this unhappy exertion.

In the afternoon the parts were examined, and the above statement confirmed. The divided perineum was uniting at its edges, and appeared like two portions of a saw closing. They were kept united by ligature, and healed most favourably. The vagina also was kept clean, and after a fortnight all the parts

were in their normal state. I have heard of two other similar cases, but this rare case is one evincing what may occur in any deviation from natural conformation, in defiance of the best care and aid.—*Ibid.*

50. *Case in which the Cæsarian Section was performed, with remarks on the peculiar sources of danger attendant on the Operation.* By CHARLES WEST, M. D. (Communicated to Royal Med. and Chirurg. Society, Jan. 28, 1851.) The subject of this history was a young woman, aged 27, a patient of Mr. Wren, of Bronlow street, whose health had always been indifferent, but whose person was not apparently deformed, and who reached the end of her first pregnancy without manifesting any symptoms especially calling attention to the state of her osseous system, with the exception of pains of a rheumatic character, and difficulty in walking, which last became very great during the last two months of her pregnancy. When labour came on, which it did at the end of the full period of utero-gestation, the existence of extreme pelvic deformity was at once ascertained by Mr. Wren, in whose opinion, as well as in that of Dr. West, Dr. Murphy, and Dr. Ramsbotham, the performance of the Cæsarian operation was indicated. It was accordingly performed by Mr. Skey fourteen hours after the commencement of labour, and eight hours after the rupture of the membranes, uterine action having, however, been feeble from the first, and having almost ceased since the escape of the liquor amnii. The patient was by her own desire subjected to the influence of chloroform, before the operation was begun; no difficulty was experienced in its performance; and a living female child was extracted. Very formidable hemorrhage succeeded the removal of the placenta, and the subsequent contractions of the uterus were very tardy in their occurrence. The patient was left in a state of great exhaustion, from which she never completely rallied, and died in 108½ hours after the operation, apparently from the conjoint effects of the hemorrhage during the operation, and of the shock to the nervous system. The treatment consisted in the administration of stimulants and nourishment, both by the mouth and in enemata, and the patient was kept in the same manner almost throughout under the influence of opium. The body, on examination after death, presented no evidences of serous inflammation, but the uterine wound was gaping widely, and even that of the abdominal walls was but partially closed. The pelvis presented, in a most marked degree, all the characteristics of that deformity which is produced by mollities ossium; the pubic bones being projected into a beak 1.2 inches in length, the width of the pubic arch being reduced to .6 of an inch, and the distance between the tuberosities of the ischia to 1.2 inch. The writer, having noticed the high maternal mortality resulting from the Cæsarian section, and which he estimates at much more than the number of 63 per cent., at which the statistics of all cases recorded since 1750 place it, since the results of cases occurring in hospitals abroad yield a maternal mortality of 79 per cent., and of cases in this country of 85.4 or 87.5 per cent., according to two different estimates, proceeded next to point out the apparently inevitable causes of this high mortality. These causes he referred to four heads, and illustrated their respective influence by reference to a table of 134 fatal cases in which the body was examined after death. The four heads are as follows: 1st. The danger arising from hemorrhage, which proceeds from a source different from that whence bleeding takes place in any other operation, and which is not capable of being arrested by the same means as suppress it under ordinary circumstances. 2d. That dependent on the shock inflicted on the nervous system, as well by the violent interference with the most important process that ever goes on in the organism within the same limited time, as by the injury to a part so important and so richly supplied with nerves as the uterus of a parturient woman. 3d. The hazard inseparable from extensive injury to the peritoneum, when unblunted in its sympathies and unaltered in its texture, as in cases of ovarian or other tumours, for the removal of which a similar exposure of the abdominal cavity is sometimes practiced. 4th. That which results from the infliction of a wound on the uterus at a time when, in the ordinary course of things, the processes which nature is prepared to carry on in it consist in the disintegration and removal of its tissue—processes the very opposite to those essential to

the repair of injury. From a consideration of all of these sources of danger, to the last of which attention has hitherto scarcely been directed, the author arrived at the conclusion, that they being so serious, and so beyond the power of art to prevent, the rule which forbids the performance of the Cæsarian section, wherever there is a reasonable probability of accomplishing delivery by the natural passages, is founded on solid grounds, and ought to be adhered to. —*Med. Times*, Feb. 22, 1851.

51. *Case of Cæsarian Section.* By Henry Oldham, M. D. (Communication to Royal Med. and Chirurg. Society.) The subject of this case was a rickety, deformed girl, aged 23, unmarried, pregnant with her first child, and seven months gone in gestation, when first seen by Dr. Oldham. On examination, the pelvis was found to be reduced to two inches in its conjugate diameter, and the uterus was much anteverted.* The membranes were punctured for the induction of premature labour, in a few days after she was seen, September 23d, 1850. On the following morning, the left arm was found in the vagina, but labour did not come on until nine A. M. on the 26th. In twelve hours, the os uteri was dilated, and then some attempts to deliver her were made. The child could not be turned; but, by drawing down the protruding arm, which, from commencing decomposition, soon gave way, and pressing the abdomen from below, the head was brought over the brim, and was at once perforated. For four hours, the crotchet was employed, both inside and outside the head, the bones of which were completely torn up, but without drawing it through the brim. At this time, a new impediment was found to have arisen, from the descent of the right hand and a foot, by the side of the collapsed head, into the pelvic brim; and, on watching the effect of labour pains, all these parts were felt to be squeezed together in the narrow inlet of the pelvis, each preventing the other's descent. It was attempted to bring down either the foot or hand, but only the slippery tips of each could be touched, and they could not be moved. The patient had now been seventeen hours in labour, and it became a question for serious consideration and consultation, whether she would be able to sustain the necessary efforts for her delivery, and whether it would not be for her benefit to perform the Cæsarian section before exhaustion came on, which at length was determined on. The operation was performed by Mr. Poland, without difficulty, and with little hemorrhage, the patient being under the influence of chloroform. The incision, five inches long, was slightly curved, and a full-sized seven months' fœtus was removed, and afterwards the placenta and membranes. For two days the patient did well, but then exhaustion came on, and she died. While she lived, she was kept under the influence of opium, and was sustained by simple cold drinks. On *post-mortem* examination, there were some slight traces of peritonitis near the uterus. The external opening was closed, and its edges adherent, but the uterine incision was gaping. The larger omentum was indurated and inflamed, and so drawn across the uterus, above the incision, as to prevent any discharge from the latter organ escaping into the peritoneal cavity. Two practical questions were suggested by this case: 1st. What was the best plan to attempt to follow out in the delivery at first? 2d. Were the complications such as to justify the Cæsarian section? With respect to the first, two plans of treatment might be adopted: 1st. To induce labour, and deliver by craniotomy. 2d. To allow her to go to term, and then perform the Cæsarian section. In determining in favour of the former, the author was guided by the great probability—with a conjugate diameter of two inches—of being able to deliver with the crotchet, and he considered that his inability to do so arose from the complex presentation. With reference to the second, he was induced to have recourse to the Cæsarian section, from a conviction that the patient would probably sink under the prolonged efforts at delivery; and a case was related, which occurred in the Lying-in Charity, at Guy's, under Dr. Ashwell, where a woman with a far less contracted pelvis died undelivered, after the powerful and sustained efforts to relieve her. It was remarked that the girl had but a feeble

* The skeleton pelvis was exhibited.

constitution, which would ill support so hard a trial of its powers, and the condition of the vagina was particularly noticed as retaining the marks of early age, being structurally weak and easily lacerable, and most unfavourable for a long craniotomy operation. Under these circumstances, the Cæsarian section offered a speedy and sure, instead of a prolonged and doubtful delivery. It was not yet forbidden from exhaustion, or any signs of inflammation; on the score of suffering, it contrasted most favourably with the persistence in the use of the crotchet; and, upon the whole, it was judged to offer a better chance of ultimate success. The curve in the incision was suggested to catch the outline of the muscular fibres on the inner surface of the uterus, and so favour the closure of the wound. The scanty hemorrhage during the operation was in a measure accounted for by the uterus being at the seventh instead of the ninth month, by the placenta being attached to the posterior wall, and the uterus being opened low down towards the cervix, where the veins were less developed. Chloroform was said to be a gain in every way, and the after-treatment by opium appeared satisfactory.—*Med. Times*, Feb. 22, 1851.

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52. *The Cæsarian Section and Premature Labour.*—The reading of the two cases presented in the preceding articles gave rise to a very stormy, wordy, and rather personal discussion in the Royal Medico-Chirurgical Society, which is reported in full in the number of the *Lancet* for Feb. last. As little that is new seems to have been elicited, we shall merely give a brief abstract of the remarks of Dr. Robert Lee as reported in the *Med. Times* for 22d Feb.

"Dr. R. Lee gave a historical notice of the Cæsarian operation, and of the induction of premature labour. He stated that the former operation had been performed four hundred times in Europe, forty-eight of which were done in the British Islands, besides several fatal unrecorded cases. The opinions of Guillemeau, Ambrose Paré, Mauriceau, condemnatory of the operation, were cited. Mauriceau asserted that there were few, if any, cases in which the accoucheur could not extract the child, living or dead, whole or in pieces, without the necessity for the Cæsarian section, and in this opinion Dr. Lee concurred. In England, in 1756, the operation for inducing premature labour was first adopted, and was successfully carried into effect by Dr. Macaulay, but for several years afterwards was rarely practiced, while the Cæsarian section was performed, and generally ended fatally. Dr. Denman wrote strongly in favour of inducing premature labour; he stated that it was a perfectly safe operation for the person on whom it was performed. It has been repeatedly practiced with success during the last fifty years. Dr. Merriman has practiced it thirty times; Dr. H. Davies on fifty occasions, and he himself (Dr. Lee) on as many occasions. In Dr. H. Davies' cases, twenty-nine children were born alive, and all the mothers recovered. In one case, Dr. Lee stated he had performed it twelve times, the woman being now alive. It is applicable in all cases of distortion; in the slighter cases at the seventh month, in those more severe, about the middle of pregnancy, or at the sixth month. If it were generally adopted, there would be no necessity for the Cæsarian section. He (Dr. Lee) was the first to induce premature labour in first pregnancies, and he had done so in several cases where a high degree of distortion existed. He then read a table of twenty-three cases of Cæsarian operation performed in these kingdoms, in all of which, save two, which he considered as doubtful cases, the mothers died. Dr. Lee then commented on Mr. Wren's case. He contended that the characteristic symptoms of mollities of the pelvic bones existed early, and that premature labour should have been induced, in which case the unfortunate woman might now have been alive. A case in which the Cæsarian section was performed at St. Bartholomew's in January, 1847, was next the subject of comment. Here, he said, the existence of great distortion of the pelvis was detected at the sixth month, and yet premature labour was not induced. The patient was admitted into hospital in November, the seventh month of pregnancy, and operated on in the following January, dying thirty-six hours after. He (Dr. Lee) thought the case was most favourable for inducing premature labour, to which, however, no allusion was made in the report of the case published in the medical journals. He concluded by speaking of a

case at Cupar, in Fife, to which Dr. Simpson was summoned to perform the Cæsarian section, but the woman was delivered before his arrival. He denounced the Cæsarian operation in strong and decided language.

53. *Injury of Cranium and Wound of the Brain in a New-born Child—Recovery.*—In July, 1839, Dr. Lagae was called to a woman, aged 34, who had been in labour forty-eight hours. Unsuccessful attempts had already been made to extract the child by the forceps, and subsequently by Smellie's perforator and a blunt hook. Dr. Lagae found it necessary to perform the Cæsarian operation. The infant was very weak, and scarcely uttered a few moans. It had a very extensive wound of the cranium, a little to the right of the sagittal suture, and a few lines in front of the posterior fontanelle. The brain was exposed, and seemed reduced to a state resembling soup mixed with blood: a small quantity of cerebral substance had escaped through the wound, and, for several days, portions continued to be removed by suppuration, in a state of detritus. The treatment consisted in the application of compresses dipped in cold water; and the child recovered. The mother was restored to health in a few weeks.

Nine months after, Dr. Lagae exhibited the child to the Medical Society at Roulers. The deficiency in the cranium was then of the size of a two-franc piece, or even less. Even remembering the tendency which the cranium possesses in young children to repair losses of its substance, it must be admitted that the loss was much more considerable at the time of birth. It is also worthy of remark that the child appeared to be as intelligent as other children of the same age.—*London Journ. Med.*, Dec. 1850, from *Bull. Gén. de Thérapeutique*, 1849, t. xxxvii.

54. *Quintuple Birth—The Deutsche Klinik*, for Nov. 23d, states that, on the night of the 11th of that month, a peasant's wife, at Alt-Rehfeld, was safely delivered of five living children. One lived three hours, another twelve; the other three survived. The mother was doing well.

57. *Polypous Excrescences from Umbilicus in New-born Children.*—To the extensive category of affections of the umbilicus, Dr. Farrège has added another, of comparatively small importance, but worthy of the attention of practitioners, on account of the anxiety which it may cause to the mothers. We refer to small polypous excrescences developed between the furrows of the umbilical fossa. The following case is an example.

In August, 1848, a female child, three weeks old, was brought to Dr. Farrège. The mother had observed a red body at the umbilicus, which she attributed to misarrangement of the cord by the midwife. The latter examined the child, but was unable to discover anything, because the body, hidden among the folds of the fossa, only projected when the child cried. On turning aside the edges of the umbilical fossa, M. Farrège discovered an excrescence of the size of a large pea, red and granulated, and bleeding easily when touched. A ligature was passed round the base, which was pedunculated, and the excrescence fell off on the third day. The wound was touched with nitrate of silver, and the disease did not re-appear. In another similar case, Dr. Farrège excised the pedicle of the tumour by means of scissors curved on the flat surface, and cauterized the wound. To recognize the existence of the disease at the commencement, it is requisite to make a very close examination, taking care to separate the lips of the umbilical fossa, which, in very young children, lie very close to each other. The treatment is very simple, consisting in excision or ligature, followed by cauterization.—*Lond. Journ. Med.*, Dec. 1850, from *Revue Méd.-Chirurg.*

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

56. *Identity.*—The following curious anecdote is related in Merrimee's History of Pedro the Cruel. "One night, a quarrel took place and a man was killed in the streets of Seville. The victor made his escape, unperceived by the

alguazils, who as usual arrived when all was over. One person only, an old woman, had witnessed the fight; but the night was dark, and the gallants being muffled in their cloaks, she had not been able to distinguish their features. She, however, deposed to one circumstance—the knees of the unknown combatant made a slight crackling noise of the joints as he walked. This was quite sufficient to designate unmistakingly the king himself, for this slight infirmity of his knees was known all over Seville. What was to be done? The law required that the murderer should be decapitated, and that his head should be exposed on the spot where the crime had been committed. Pedro, after giving the old woman a small sum of money, ordered the royal bust to be carved in stone, and placed in the street where the duel had taken place."—*Edinburgh Review*, No. 185. T. R. B.

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57. *Abortion.*—In *Mills* v. *The Commonwealth*, on a writ of error, the Supreme Court of Pennsylvania decided, in the case of an indictment for an attempt to commit abortion, that a count charging the defendant with an attempt to produce the miscarriage and abortion of the mother instead of the child is well laid.

It is not the law in Pennsylvania that a count should have charged that the woman had *become quick*. The words *pregnant and big* are sufficient to this indictment.—*American Law Journal*, New Series, Vol. II. p. 68. T. R. B.

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58. *Ancient Trial for Impotence.*—There is, in the New York State Library, a curious book entitled "Processus Divorcii inter Joannem Gyb, in Strather, et Margaretam Hillok, A. D. 1563," evidently a modern reprint, if indeed it be not printed from the MS. Its contents purport to be taken from the register of the Kirk session of the parish of St. Andrews, in Scotland. Margaret, his "spouse," accuses John of impotency, having been his bedded wife for upwards of two years. The superintendent ordered them to "coheir" and keep "company together, &c., for the space of three-quarters of a year." At the end of that time, John denied his impotency, and confessed that he had camall "dayl" with another woman and also with his wife, "but nocht in lych manner as with the other female." Another order to cohabit within fifteen days, on pain of calling in the temporal power. Finally a trial was held. Gyb confessed his utter impotency as to his wife, but testified that since the present suit he had repeatedly had intercourse with a servant woman of his mother, and this female testified to the same. She was urged thereto by the mother, to the effect that the "verite mycht be haun of the brut rased agains Jhone be Margret Hillok, his wyff. And that hyr fee and reward suld be any blak kyrtyll."

On the 25th of June, 1563 (upwards of a year since the commencement of the trial), the superintendent "fyndes na cause of impotencye prouyn."

Whereupon, Margaret in July applied for a divorce, on the ground of adultery, proven against John, which was granted, and he was transferred to the temporal power for punishment of his crime. T. R. B.

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59. *Absence of Milk after Delivery.*—This is generally considered as a rare occurrence. A case is mentioned by Dr. Hunt (*Buffalo Medical Journal*, vol. vi. p. 121), of a female with her fifth child, in which the secretion was wanting. There was no swelling or pain in the breast. She had never given milk; the children had all been brought up "by hand," and three of them were now living. The menses were regular. T. R. B.

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60. *Present Law of Virginia concerning the Crime of Abortion.*—From an interesting communication in the *Medical News*, we learn that, until the late revision of the code, the law of Virginia on this subject was the common law, according to which, the procuring of abortion *before quickening* was not an indictable offence, if done with the mother's consent. The alteration proposed by the revisers, while it made the destruction of the fœtus, under the circumstances just mentioned, criminal, yet recognized in principle the exploded distinction of the common law, by awarding very different grades of punishment to the procurement of abortion before and after quickening. There was another

objectionable part in the proposed enactment, inasmuch as it did not exempt from the penalty of law the inducing of premature labour by the physician, unless done to preserve the life of the *mother;* the claims of the child to the benefit of the operation in certain cases were overlooked.

Under these circumstances, the correspondent who makes the above communication states that he made a statement to the Revisers as to the injustice and unreasonableness of the above enactments. These gentlemen yielded to his application, and reported the following clause, which was agreed to by the legislature, and is now the law of the State:—

"Any free person who shall administer to, or cause to be taken by a woman, any drug or other thing, or use any means, with intent to destroy her unborn child, or to produce abortion or miscarriage, and shall thereby destroy such child, or produce such abortion or miscarriage, shall be confined in the penitentiary not less than one, nor more than five years. No person, by reason of any act mentioned in this section, shall be punishable where such an act is done in good faith with the intention of saving the life of such woman or child."

The expression "any free person" has reference to the different grades of punishment awarded to free persons and slaves, as set forth in another part of the code.

While this important improvement of the criminal law is a matter of congratulation, it is to be regretted that another improvement, also suggested by the writer, did not meet with equal favour, and which was to substitute *a jury of physicians* for a *jury of matrons* in cases of doubtful pregnancy. Certainly the lawmakers could scarcely be aware of the melancholy blunders that the latter have sometimes committed. T. R. B.

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61. *Legal Definition of what constitutes a Wound.*—The English courts are gradually coming into a correct exposition of the word. In *Rex* v. *Smith*, which I have quoted in another place, (*Medical Jurisprudence*, last edition, vol. ii. p. 287,) the judge said, "There must be a wound (that is, if the skin be broken), whether there is an effusion of blood or not; it is within the statute, whether the wound is external or *internal*." In that case, there was a blow with an iron hammer on the face, by which the left jaw was fractured in two places, and the skin inside of the mouth was broken, but not at all externally.

In a later case, *Regina* v. *Warman*, the death of the deceased was caused by a blow on the head with a piece of wood, (a swingle.) The surgeon deposed that death was caused by extravasation of blood, which pressed on the brain. "There was no external breach of the skin on the head. I found a collection of blood in the back part of the head. On examining and cutting into the scalp, I found a collection of blood between the scalp and the cranium, just above the spot where, within the cranium, I found the pressure on the brain. I call that a *contused wound*, with effusion of blood. This is the same thing as a bruise. The internal part of the skin was broken. Medically, we call the breaking of the skin, whether externally or internally, a wound."

The verdict was that of guilty, and the fifteen judges held that the conviction was right.—*Carrington and Kirwan's Nisi Prius Reports*, vol. ii. p. 195. T. R. B.

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62. *Procuring Abortion, or rather Premature Birth.*—A female, a single woman, went to the house of the prisoner, and having informed her of her pregnancy, underwent an operation, as described by witness, of having a pin thrust up into the womb. This was repeated for several days, and it ended in the delivery of a male child, the female being about six months advanced in pregnancy. The child was born alive, but died about five hours afterwards. A medical witness stated that there were no unusual appearances on the body of the child; that it was a healthy child, but, being born at that period of gestation, it was impossible that it could live any considerable length of time, separated from the womb of the mother. It was incapable of maintaining a separate and independent existence. The witness further said, "Judging from the healthy appearance of the child, I cannot suppose that the premature delivery was spontaneous. The operation described would probably and naturally produce

that premature delivery. It might be produced by a fall or any sudden shock received by the mother, but in this case I have no doubt that it was in fact produced by the acts of the prisoner."

The judge (MAULE), in summing up, said, "The prisoner is charged with murder, and the means stated are that the prisoner caused the premature delivery of the witness, by using some instrument for the purpose of procuring abortion; and that the child so prematurely born was, in consequence of its premature birth, so weak that it died. This, no doubt, is an unusual mode of committing murder, and some doubt has been suggested by the prisoner's counsel whether the prisoner's conduct amounts to that offence; but I am of opinion (and I direct you in point of law) that if a person, intending to procure abortion, does an act which causes a child to be born so much earlier than the natural time, that is, born in a state much less capable of living, and afterwards dies in consequence of its exposure to the external world, the person who by her misconduct so brings the child into the world, and puts it thereby in a situation in which it cannot live, is guilty of murder. The evidence seems to show clearly that the death of the child was occasioned by its premature birth, and if that premature delivery was brought on by the felonious act of the prisoner, then the offence is complete." *The Queen* v. *West, Carrington and Kirwan's Nisi Prius Reports*, vol. ii. p. 784.

T. R. B.

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63. *Poisoning with Cocculus Indicus.*—The prisoner was indicted for administering poison, and it was proved that two cocculus indicus berries had been given to a child nine weeks old. The child, after having swallowed them, threw up one by vomiting, and the other passed through her body, in the course of nature, and was found next day in her clothes.

Two medical witnesses, called on the part of the prosecution, proved that the cocculus indicus berry is classed with narcotic poisons: that the poison consists in the presence of an alkaloid, which is extracted from the kernel; that all the noxious properties are in the kernel; that it has a very hard exterior or pod, to break which much force is required.

One of these witnesses added that the berry, if the pod is broken, is calculated to produce death in an adult human subject, though he did not know how many berries would be required for the purpose; that he thought the poison contained in the kernel of two berries, if the pods were burst, and if retained on the stomach, might produce death in a child nine weeks old, but that the berry could not be digested by the child, and that it would pass through its body, without the pod being burst, and so would be innocuous (as had, in fact happened in the present case).

The counsel for the prisoner objected that the berries were not poison within the meaning of the statute, for that, though the kernel of the berries contained poison, yet the pod rendered the poison innocuous.

The judge (Vaughan Williams) overruled the objection, and left the whole case to the jury. Verdict, guilty.

Judgment of death was recorded, but execution was stayed in order to submit the point raised by the prisoner's counsel to the consideration of the judges.

The discussion before them in the Exchequer chamber is given in detail by the reporter, and is quite interesting.

The counsel for the prisoner observed that the indictment was founded on the statute 1 Victoria, chap. 85, sect. 2, which makes it a capital felony to administer to, or cause to be taken by, any person, "any poison or *other destructive thing*," with intent to commit murder. The real question is, whether the berries in the state in which they were administered were "poison." The prisoner thought he was giving a destructive thing, but did not do so. It was inquired of the counsel by the judges what he would say if arsenic was given in a globule of glass? again, if arsenic was put in a paper envelope and that wrapped in oiled paper, and administered? He contended that in "such states, it could not be a destructive thing." But it was replied, if a person gives poison in too small a dose, you would say that was not within the statute, as it could not be destructive. If you are right in so saying, persons might give doses of arsenic and speculate

on the size of the dose. Finally, Chief Justice Wilde remarked, "The question here is whether the prisoner administered poison with intent to murder. The kernel of the berry was a poison; but he administered it in a condition in which it was not capable of doing injury. Is that administering poison? If a person administers poison with intent to murder, but accompanies it with something which prevents its acting, we all think that it is the offence provided for by this enactment, and that the correction must be affirmed." Justice Alderson said, "This is very different from the case of a person administering an innocent thing, and thinking it poison; there he does not administer poison at all; here he does." The other judges concurred in affirming the conviction. *Regina* v. *Cluderoy, Carrington and Kirwan's Nisi Prius Reports*, vol. ii. p. 707.

Without impeaching the leading statement of the medical witnesses, that the peculiar substance here called an alkaloid (*picrotoxine*) is contained in the kernel alone, and that it is poisonous, it appears to me scarcely yet proved that the shell or pod is innocuous. Pelletier and Courbe have found two alkaloids in it in minute quantities.—*See Christison's Dispensatory*, Philad. edit., p. 397.

T. R. B.

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64. *The Diseases to which Manufacturers of the Sulphate of Quinine are liable.* By M. A. Chevalier.—The above article has now been largely manufactured in France, during thirty years, and it seems to produce peculiar diseases among some of the workmen. M. Chevalier has ascertained that they are liable to a cutaneous affection, which forces them to intermit their work for several weeks at a time; and, indeed, some have been obliged to quit the business altogether.

M. Zimmer, a manufacturer of sulphate of quinine, at Frankfort, mentions that some of his workmen, engaged in pulverizing cinchona, are attacked with a peculiar fever, and which he calls cinchona fever. It has affected some so severely that they also were forced to give up their occupation. This disease has not been noticed in France.

But the cutaneous affection attacks not only the labourer, and that whether he be temperate or intemperate, but frequently also those who merely come in contact with the emanations from the manufacture. M. Chevalier is not at present able to point out the predisposing causes productive of these diseases.—*Comptes Rendus*, October 7, 1850.

I copy the above, as it seems now to be conceded that sulphate of quinine in large doses may be poisonous. If this be so, the above results are not surprising.

T. R. B.

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65. *Curare, Researches on it* by MM. Pelouse and Cl. Bernard.—Curare is a poison prepared by the savages that inhabit the forests on the borders of the Upper Orinoco, the Rio Negro, and the Amazon. Although it has been known as such for some time, still its precise nature is not understood. The Indians who sell it keep its preparation a profound secret. It is only known to their priests.

According to Humboldt, curare is an aqueous extract obtained from a plant of the family of the Strychnideæ; and according to Boussingault and Roulin, it contains a substance analogous to a vegetable alkaloid, and which they term *curarine*.

The information received from M. Goudet agrees entirely with that given by Humboldt, as to its being an aqueous extract; but he adds that, before the extract becomes perfectly dry, the Indians of Messaya add to it a few drops of poison collected from the most poisonous of their serpents. This fact is quite worthy of attention, as the physiological action of curare greatly resembles that caused by the bites of snakes.

Curare is a solid substance, of a black colour, resinous appearance, and soluble in water.

It resembles the poison of the viper in that it can be swallowed with impunity, but when introduced into a wound under the skin, its absorption is uniformly and rapidly fatal. This was proved by very many experiments.

When injected into the blood-vessels in the form of even a weak aqueous

solution, it proved instantly fatal. No cry or convulsion occurred. The same result happened more slowly, when the solid curare or its solution was introduced under the skin, with some striking peculiarities. If birds were operated on, they flew about for a few seconds, apparently unaffected, but then dropped dead. Dogs and rabbits appeared after a few moments to be tired; they laid down as if asleep and soon expired, without any cry or indication of the presence of pain.

On dissection, every appearance showed the complete destruction of the powers of the nervous system. Mechanical or chemical agents caused no reflex movements. The nerves indeed were as inert as if death had happened many hours previous. The blood is black and coagulates with extreme difficulty. It does not redden by exposure to the air.

To show the innocuous operation of curare on the stomach, they performed this striking experiment. They mixed the poison with the food of the animal, and it appeared to be unaffected. No indication of poisonous effects could be perceived. But when an opening was made into the stomach, and the gastric juice thus tainted was obtained, a small quantity introduced under the skin of an animal caused instant death, with the same result as when the pure poison had been applied.

It is evident, in the opinion of the reporters, that these facts prove a want of absorption of the poison by the gastro-intestinal mucous membrane. Still further, a solution of this poison was injected into the bladder of a dog, and was retained during six or eight hours without injury, and yet the urine then discharged, produced, on insertion into a wound, all the ordinary poisonous effects of the curare.

Messrs. Pelouse and Bernard promise hereafter a chemical examination of this substance.—*Comptes Rendus*, October 14, 1850. T. R. B.

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66. *A Case of Abortion brought on by Savin, and followed by Perforation of the Stomach, and Death.* Communicated by James H. Salisbury, M. D., of Albany, to T. R. Beck, M. D.—A lady by the name of Miss ——— came into Albany at 3 o'clock on Wednesday morning, July 24th, 1850, on the western train of cars, and stopped at the Delavan House. She entered her name on the register ——, and took a room on the lower floor. About 9 o'clock A. M. the same day, she requested a room on the second floor, where she would not be so much disturbed by the noise from the street. At the same time she stated that she wished to remain a few days. Her countenance was pale and careworn—like one sick and troubled Room 44 on the second floor was given her.

On Wednesday afternoon about four o'clock, she requested one of the waiters to go and get some medicine for her in a two ounce phial, labelled chloroform. She told him to get the medicine that was written on the label of the phial. This was obtained for her, as requested, at Dr. Burton's, near the Delavan House. On the following morning, about 5½ A. M., she rang the bell, and requested the waiter to go to a drug store and get some medicine. She gave him the two-ounce phial, labelled *chloroform*, and told him to get it filled with the medicine written on the label, and also to get a drachm phial of morphine. This the waiter did as requested. No more was heard or seen of her until Friday, 2 P. M., July 26.

At 2 P. M., Friday, July 26th, the key to the door was found on the outside in the hall on the floor, and the door bolted on the inside. On looking through the keyhole, a portion of a lady's wardrobe was observed lying on a chair. The door was immediately burst open by Mr. Clark, assisted by Mr. Colburn.

The body of the deceased lay upon the bed in an easy and natural position, apparently dead. The coroner (Mr. Brower) was immediately called to hold an inquest. Dr. Swinburn was summoned to make a post-mortem. He called on me to assist him.

Autops. cadav. about thirty-three hours after she was last seen alive, and probably about twelve or fourteen hours after death. She was not yet cold. She lay on her back in the bed in an easy and natural position, her left hand lying over the region of the stomach and her right hand lying off to the right

of her at an angle of about 45°. Near her right hand lay two phials, the one containing chloroform, the other morphine.

Her appearance, externally, was normal, except some white froth which had issued and was still issuing from her nose. On removing her from the bed, found her underclothes and the sheets considerably stained with blood in the region of the hips. The blood afterwards was found to have proceeded from the uterus. On laying open the abdomen, found the stomach bearing marks of high inflammation. It was softened and perforated, and its contents emptied into the cavity of the abdomen. There was extensive peritonitis. The perforation was about the size of a fifty cent piece, and was situated in the region of the greater curvature, near the cardiac orifice. For several inches around the perforation, the stomach was very much corroded, thinned, and softened, so that it was easily torn. Œsophagus in a state which indicated high inflammation. Small intestines very much inflamed for about four feet from the stomach, the remaining portion comparatively healthy. The colon and rectum blackened and inflamed in the vicinity of scybala, which were found to the amount of about a pint scattered through their whole length. These were carefully removed and preserved, together with the intestines, stomach, and œsophagus, for chemical examination. Uterus was found enlarged. It had the appearance of a recently evacuated gravid uterus of from three to four months gone. Empty, except about two ounces of lochial discharge or secretion. Mouth of uterus relaxed and open, so as to admit easily the finger. Vulva and vagina loose and flabby. Judging from the state of the parts, I should think the fœtus had been discharged from two to three days.

She appeared to be about twenty-seven years of age, of a moderately full habit, and possessing naturally a strong constitution.

Chemical Examination.—The stomach, intestines, and their contents, with about one quart of matter vomited up in the chamber, consisting mostly of tea and coffee, and the several bottles containing medicine found in her possession were delivered to me for chemical examination. This examination was immediately commenced. From the corroded appearance and perforation of the stomach, the presence of some corrosive mineral poison was suspected. After subjecting the stomach and intestines, the scybala, the contents of the chamber, and what matter had been emptied from the stomach into the cavity of the abdomen, separately to a rigid chemical examination, for all of those mineral poisons which would be likely to produce such a state of things in the stomach, without finding the slightest evidence of any of them, I commenced the search of each part separately for the several vegetable substances of an irritating nature, used as emmenagogues. The first substance tested for was savin. Slight evidence of its presence was found in the stomach and intestines, still greater evidence of its presence in the matter vomited and that taken from the abdominal cavity, and conclusive evidence of its presence in the scybala, or hardened feces. The examination of the aforesaid parts of the body here ended.

Attention was next directed to the contents of the several phials found in her possession. The only one suspected to contain savin was examined. There was about half a drachm in the phial. It was made up of a mixture of oil of savin and tinct. of lavender. No other body was found in any of the phials which would be at all likely to irritate and perforate the stomach. Here the examination for poisons ended. Of the drachm of morphine which she obtained Thursday morning, only thirty grains were left. Of the two ounces of chloroform, only about one half ounce remained. So that from Thursday morning to the time of her death, which probably occurred Thursday night, she swallowed or otherwise disposed of thirty grains of morphine and one and a half ounces of chloroform.

From papers in her trunk, she appeared to be unmarried. The state she was in showed conclusively that she had been pregnant, and between three and four months gone; from the chemical examination, that savin had been administered; from the circumstances of the case, that it had been given or taken to produce an abortion; from the post mortem, that a violent gastritis had been excited, which resulted in abortion, softening and perforation of the stomach, peritonitis and death.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Wills' Hospital—Service of Dr. ISAAC HAYS—*Cases discharged from Oct. 1st, 1850, to Jan. 1st, 1851.*

	Cured.	Relieved.	Incurable.
Acute conjunctivitis,	1	0	0
Chronic conjunctivitis,	3	4	0
Granular conjunctivitis,	5	4	0
Corneitis,	2	0	0
Iritis,	1	0	0
Scrofulous ophthalmia,	3	0	0
Phlyctenular ophthalmia,	2	0	0
Ulcer of the cornea,	3	0	0
Wound of the cornea,	2	0	0
Opacity of the cornea,	1	0	0
Vascularity of the cornea,	1	0	0
Cataract,	2	0	0
Amaurosis,	0	1	1
Staphyloma corneæ,	1	0	0
Irritable retina,	0	1	0
Injury of the eye,	1	1	0
Coxalgia,	2	0	0
	30	11	1

Wills' Hospital Dispensary—cases treated:—

Acute conjunctivitis,	9	Purulent conjunctivitis,	5
Chronic conjunctivitis,	12	Scrofulous ophthalmia,	14
Catarrhal conjunctivitis,	4	Pustular ophthalmia,	5
Granular conjunctivitis,	5	Ophthalmia tarsi,	13
Rheumatic ophthalmia,	2	Amaurosis (partial),	4
Iritis,	1	Inflammation of lach. sac,	1
Ulcer of the cornea,	3	Tumour of the lid,	3
Opacity of the cornea,	3	Injury of the eye,	3
Particles of steel in the cornea,	5	Wound of the cornea,	2
Total,			94

Staphyloma Corneæ.—Henry J., æt. seventeen, a native of Va., having good general health, was admitted, October 23d, for the relief of a deformity caused by a staphyloma corneæ. When nine years of age, he received an injury of the left eye with a pair of scissors, the blades of which were thrust through the cornea. Since the accident occurred, he has had no vision in the injured eye. Soon after the time of the injury, the cornea began gradually to become prominent, and the protrusion continued to increase, until ten months previous to the date of his admission; when three knob-like prominences made their appearance near the margin of the cornea, and the whole globe began

to enlarge. When admitted, the cornea was quite opaque and very prominent, and the three knob-like elevations were about the size of large peas. The whole globe was enlarged to such an extent as to prevent the complete closure of the lids without great difficulty. From the time of receiving the injury he has suffered little or no pain in the diseased eye, and the sympathetic irritation of the sound eye had been but slight. Oct. 30th, Dr. Hays, in the presence of his colleagues and Dr. Wm. Ashmead, removed the whole of the cornea, making first an incision of the lower half with a Beer's cornea knife, and completing the entire section with curved scissors. The contents of the globe immediately escaped, and a very profuse hemorrhage followed, which continued for over two hours, and then ceased upon the formation of a large coagulum between the lids and the incised margins of the cornea. This coagulum was suffered to remain until it came away spontaneously, on the sixth day after the operation. On the second and on the fourth days there was a recurrence of considerable hemorrhage—the whole amount of blood lost was about ℥xvj. Soon after the operation, the eye became greatly distended and extremely painful. For five days the patient's sufferings were intense, and several times he exhibited some premonitory symptoms of tetanus. When, on the fifth day, suppuration was fully established, the pain became less, and gradually subsided with the subsidence of the distension of the globe. On the tenth day the patient was permitted to sit up, having then but little pain. On the fourteenth, he could close the lids over the eye, and on the twenty-ninth he left the hospital, the globe having been diminished to four-fifths its natural size and entirely free from inflammation. Since leaving the hospital, he has had two slight attacks of irritation in the right eye.

Cod-Liver Oil.—This remedy was employed in the constitutional treatment of all the various forms of scrofulous ophthalmia, and the results were such as fully to sustain the great confidence which Dr. Hays has in its efficacy, a confidence which, he remarked, had been gained from the use of the cod-liver oil in a large number of cases in both public and private practice for the last three years. The oil was also found of especial value in all cases which, under ordinary treatment, have a tendency to frequent relapses; in these cases, its use alone was found sufficient to effect a cure, unaided by local applications. This was most evidently manifested in the case of a sailor, æt. 25, who came into the hospital in March last, and for the last three years has been the subject of a most intractable conjunctivitis. Up to the 1st of November last, the usual modes of treatment were diligently employed without any amendment; indeed, he was much worse in October than he had been at any time since he came into the hospital. From the time of his admission up to the 1st of November, he had several very severe relapses, in the last of which he had an ulceration of the cornea, which perforated and allowed the escape of the aqueous humour. It was while suffering the most in this relapse that he was ordered the cod-liver oil, with an entire discontinuance of all other remedial means. At that time the vascularity of the cornea was such as entirely to obscure vision—lachrymation was profuse, and photophobia intense; his improvement from that time to this (January 24, 1851) has been rapid and permanent. He can now see to read; he can also bear the light of noonday without lachrymation or inconvenience of any kind, and the great vascularity of the cornea has almost entirely subsided. Many other instances, illustrative of the statements above made, might be cited from the present service of Dr. Hays, did the space designed to be occupied by this report permit.

A. F. MACINTYRE, M. D., *Resident Physician.*

Wills Hospital, *Jan.* 1851.

On the Importance of establishing a Lectureship on Dental Surgery in Medical Colleges. By E. B. Gardette.

The writer, a practicing dentist of Philadelphia, begs leave respectfully to call the attention of the trustees and medical faculties of the medical schools of the United States to the propriety and advantages of establishing an adjunct professorship to the chair of surgery, in which the specialty of dental surgery may be taught to the medical student seeking knowledge in your institutions.

In making this suggestion, he indulges the confident belief that the existence of such a chair would be no less useful to those who may be compelled to practice some branch of dental surgery, as part of their duties in general surgery, than to the smaller number who may determine to embrace that specialty as their profession.

The writer would offer for your consideration some reflections that seem to render this proposal consistent, not only with the wants of the student of medicine and the public, but with the duty and the interests of the medical schools which may act upon this request in such form as seems most proper to their own judgment.

It will scarcely be assumed by any trustee, and still less by any member of a medical faculty, that the profession of the dentist or its duties, are less important to mankind than any other of the specialties of surgery—whether the oculist, the aurist, or the lithotomist; and therefore it is needless to consider such a question open for debate, or requiring argument in a country, especially, where the services of good dentists have been so widely and universally needed. It being granted, then, that the science itself is of equal importance with the other departments of surgery, it is an undeniable truth that, whilst all other specialties are taught and included in the professorships of medical schools generally, the principles and practice of dental surgery have received no attention, or certainly none that would permit the graduate of medicine to feel that he was qualified for the simplest duty of the dentist.

Such a state of things was perhaps an unavoidable evil when men could not be found who were competent to teach the principles of our science, and when there was need of a comparatively small number of dentists; and hence no such aid was then called for from the medical colleges: but at this time there would seem to be required about twenty-five hundred dentists, more or less, throughout the United States, which is sufficiently proved by the fact that about that number are believed to be engaged in the practice of the profession, after some fashion or other—good, bad, and indifferent; and to supply an increasing demand for well-educated dental surgeons, as well as to raise the standard of that profession, would appear to be a matter of common interest.

Within a few years, two or three colleges of dental surgery have been established in this country under the sanction of charters from the States in which they are located; and without examining into their history or their influence upon the profession of the dentist, it is a source of regret that they must be regarded as the offspring of your neglect, and their very existence a reproach upon medical institutions for their unjust and exclusive course towards the science of dental surgery. It would seem an act of inexplicable unkindness to have thus singled out the profession of dentist from among the specialties of surgery, and forced it into an attitude of independent self-protection; but a gentleman who fulfils the duties of both medical practitioner and dentist with such distinguished abilities as to be an honour to both professions, has traced truthfully the origin of the neglect of which the dentist complains. The undersigned quotes from a valedictory address to the graduating class of Baltimore College of Dental Surgery, March 1850, when speaking of the early periods of the existence of a medical faculty:—

"They condemned, without stint, a calling they knew not how to practice, and a practice they knew not how to improve. Such of the faculty as were learned in their profession were found always competent and fully prepared to be oculists, aurists, or lithotomists, or to devote themselves to any other branch of the profession which their interest, inclination, or talents might determine, *except* that of dental surgery. This branch seemed to require something more than medical knowledge; it required great mechanical skill—an education of

the hand as well as of the head—a kind of education they had not received and knew not where to acquire, and yet affected to despise. The necessities of the community cried aloud to them for help—a help which they could not bestow. This drove many sufferers to seek dental aid out of the medical profession, and to obtain that help which mechanical genius alone could supply. At this the profession seemed mortified and chagrined, and loudly mocked at those who dared to supply their delinquencies, and united as one man in deriding the uneducated dental mechanic. They first created the necessity for an empiric, and then croaked forth their withering contempt on the creature their own ignorance had made."

Thus has dental surgery been left to struggle through endless impediments and difficulties, instead of being regarded as a link, however humble, in the great chain of medical science, which should with patriarchal strength and harmony foster and embrace every branch of the healing art.

It is now believed that, among the number of medical students who attend each of the schools, there are many who would gladly devote themselves to the specialty of dental surgery, and it is from among these, and at the early age at which they generally devote themselves to medical studies, that good dentists could be formed; they should still be required to earn and receive a diploma with the title of M. D., as a guarantee of fitness to practice and a claim to confidence as dentists. Even among the number that annually graduate, either to practice medicine generally, or limiting their attendance to their own families and dependents at the South, a correct knowledge of the theory and practice of dental surgery, such as might be derived from a course of lectures, would be highly valuable. And it is believed there would not only be a direct increase of good dentists, but a desirable addition to the number of those who should be competent to determine what constitutes a good dentist.

The establishment of separate schools for each specialty in medical science (and why should there not be for the oculist, or the aurist, as well as the dentist?) would appear to be the dismembering of a great family, thereby lessening its influence for good, as well as that power which is justly derived from an *esprit de corps* subsisting in every branch of an elevated and honourable profession.* In this expression of opinion as to the ultimate tendency of dental colleges, the undersigned is actuated by no unkind or invidious feelings, but, on the contrary, he gives them due credit for the efforts they have made and are making to improve the profession; and to the Baltimore College of Dental Surgery he is personally grateful for acts of courtesy and kindness towards himself, and to the memory of his father.

The educated dentists in the various parts of the United States are abundantly numerous, it is believed, to fulfil such duties as might be assigned them in each of our medical colleges. The students who now attend the dental schools would in this event be added to the number of matriculants in the medical classes of the country, and the need of separate institutions would cease.

Frequent occasion for consultations between the physician, the surgeon, and the dentist, has been felt by almost every practitioner of medicine, as a necessary consequence of the connection and sympathy reciprocally existing between the teeth and many serious disturbances of the general health: such sympathies would naturally seem to suggest the mutual dependence between the physician, the surgeon, and the dentist, and should be a good reason for some similarity and sympathy in their modes of education. The benefits from such a state of things as the mind can readily anticipate would not rest here; medical men would sometimes, no doubt, receive important aid from the dentist, in tracing to their true origin many diseases of the head and face that now baffle their skill.

Whatever action your medical faculty or board of trustees may see fit to take in reference to these suggestions, and the object they are designed to promote, the undersigned may at least respectfully urge that they would seem to demand fair and kindly consideration, as involving matters of deep concern to the community, for whose safety and advantage all medical learning is sought, and medical colleges instituted and fostered.

DOMESTIC SUMMARY.

Femoral Aneurism cured by Compression.—Dr. W. H. Church records, in the *New York Journ. of Med.* for March last, a case of aneurism of the right femoral artery successfully treated by Dr. John Watson by compression.

The patient was a man thirty years of age, who was admitted into the New York Hospital with a pulsatory tumour which he first noticed three years previously, and which has been steadily increasing since. When admitted into the hospital, his condition was as follows:—

"The tumour is tense, but elastic to the touch, in fact presenting all the characteristic signs of femoral aneurism, but unusually well marked. It is situated on the anterior and inner part of the ham, its upper edge being three inches below Poupart's ligament, probably just below the giving off of the profunda branch of the femoral artery; it is slightly oblong, extending down the course of the artery six inches, that being its greatest length.

"*Jan. 19th.* The leg being bandaged from the toes up to the knee, pressure was commenced at a quarter past one, P. M., with Dr. Hosack's instrument, by which the counter-pressure is made over the trochanter and the outer condyle of the os femoris. When the instrument was first adjusted, and pressure made over Poupart's ligament sufficient to stop the pulsation in the tumour, patient most confidently said he could bear it for four weeks. At two P. M., pulsation was felt in the tumour, and he complained of some pain. Another pad was applied two inches below, and the pressure of the other slackened, though retained in the same position. Four o'clock, full pulsation, and patient suffering severe pain; pad changed, and tinct. opii gtt. xl administered. During the afternoon patient suffered very severe pain, the pressure requiring to be changed very frequently. At six P. M., tinct. opii gtt. xxx was ordered. At eight o'clock he complained of excessive pain passing down the thigh to the knee-joint; tincture of aconite was painted over it and about the pads, which he said gave him relief. It was found impossible to control the circulation sufficiently by the lower pad of this instrument, and therefore Signorini's artery compressor was substituted, one pad being placed upon the plate of the former instrument and the other over the artery. Sol. sulph. morphiæ (Magendie's) gtt. xx.

"At 9 o'clock the pain was so severe that sulphuric ether was administered, which relieved the pain for an hour; and he appeared to be more under the influence of the opiates after the anæsthetic influence had passed away. The senior assistant remained with him during the night, and at one A. M. of the 20th felt pulsation in the tumour for the last time, when he adjusted the pad, so that its pressure was borne very well until 5 A. M.

"*20th*, 10 A. M. Blood could be *heard* passing through the tumour, but no pulsation heard. Signorini's compressor was again adjusted, and remained undisturbed until half-past four in the afternoon, when the pressure was slightly moderated.

"*21st.* Compression has been continued during the last night, though less firmly than at first, and entirely at the lower point. At midnight sol. sulph. morph. gtt. xx was again administered, and about three o'clock this morning patient fell asleep, and slept more than an hour. There is no pulsation to be felt either in the tumour or in the posterior tibial artery. The temperature of the limb is a very little lower than of that of the opposite side. Patient feels very much less pain, and pressure is borne for several hours with but little complaint.

"*22d.* Patient slept during the greater portion of the last night, and to-day complains of but little pain. The size of the tumour is somewhat diminished, and feels much softer than yesterday. The limb is not at all swollen, and its temperature is about the same as that of the other side.

"*25th.* Since the last date, very moderate pressure has been continued, change of position of the pad not being required oftener than once in twelve hours, and to-day the compressor is entirely removed. A thick compress of lint is applied over the artery, and firmly secured in its position by a single spica bandage. No pulsation can be detected in any part of the limb, though the

surface is now of a higher temperature than that of the left side. The tumour is gradually diminishing in size.

"28*th*. All compression is to-day discontinued, the bandage removed from the leg, and the patient allowed to sit up, the limb being elevated, and resting upon a pillow. He speaks of slight numbness about the knee, but has no pain whatever in the limb.

"*Feb.* 1*st*. No pulsation can yet be felt in the popliteal or posterior tibial arteries, though the limb is fully as warm as the other. Patient sits in a chair during the whole day, and sleeps perfectly well at night, without the aid of an anodyne. The tumour continues to diminish, and is now not more than half as large as before treatment was commenced. It is also becoming more firm.

"6*th*. Patient being very anxious to return home, permission to do so is given. Pulsation in the posterior tibial artery has not returned."

Coup de Soleil, or Sun Stroke. By Frederick D. Lente, M.D., Resident Surgeon at the New York Hospital.

In "A Summary of the Transactions of the Coll. of Phys. of Phila.," published in the last number of the *Amer. Journ. of Med. Sciences*, are some remarks by Dr. Pepper, one of the physicians of the Pennsylvania Hospital, on the above disease. "He considered it a remarkable circumstance that this affection has received so little attention from medical writers." "In consulting the standard authorities, we find but little said in reference to it, and that little generally vague and unsatisfactory." This fact is, in our opinion, easily accounted for. The disease seldom occurs except in crowded communities, as in large cities; and in these, only among a particular class, the common labourers, who earn their daily bread by their daily work, and are consequently compelled usually to labour during the intensest heat of the day, when the thermometer, in the shade, ranges from 96° to 100°, and over, with not only the direct rays of the sun playing full upon them, but also the reflected rays from the pavements and buildings. Added to this, as the efficient and exciting cause, we have fatigue, intemperance, and often insufficient or improper food as predisposing agencies; these causes do not usually exist in the country, and in small communities, where, if labour is performed in the heat of the day, and under exposure to the sun, it is with a supply of fresh, wholesome air, with none of the other predisposing causes; the powers of the constitution will, under such circumstances, generally resist its baneful influence. The members of this class, when an accident befals them, are almost always conveyed immediately to the hospital; and therefore it is rather rare for a private physician to be called to treat a single case of coup de soleil, and of course nothing can be furnished by him on the subject in the way of practical experience. When brought to the hospital, it is generally at an hour when the attending physician is absent, and the case usually lies before his next visit, or is so far recovered as not to call for his particular notice, so that he knows but little personally of the phenomena of the disease. It is thus only seen by the resident physician, who, in the discharge of his multitudinous duties, takes no particular note of the symptoms or history of the case, but sees the patient die in a few hours, perhaps in a few minutes, after his admission, and thinks no more of it.

Private physicians are sometimes called suddenly, in the heat of the summer, to a man who has "fallen down in a fit, while at work," and regarding the case as one of apoplexy, he pulls out his lancet, bleeds him, and sends him to the hospital. This is almost universally the practice. Dr. Pepper says, of twenty hospital patients, *all* had been bled previous to admission. This fact is, of itself, a strong indication that some knowledge of the pathology of the disease is much needed in the medical community; for it is well known to those who have had much experience in this disease, that venesection, if it succeeds, is almost certain death.

In this city the disease is quite common in the months of July and August, commencing sometimes as early as the middle of June, and ending as late as the first week in September. In the summer of 1847, if I remember rightly, there were thirty-seven cases in four days. Most of them died so promptly that there was not time to convey them to the hospital, the coroner being usually

the only physician who saw them. Not only were men affected, but animals, omnibus horses especially, it being quite common to see them fall, and die in the street. During the last five years, according to our records, *forty-two* cases were admitted into the hospital. Of these, *twenty-four* died, and *eighteen* survived. Fourteen occurred in the month of August, twelve in July, twelve in June, and four in September.

The prognosis in this disease, as in cholera, depends almost entirely upon the stage in which the disease is seen. If in the stage of collapse, the case is almost hopeless. So that one physician might have ten cases, and all might recover; another might have the same number, and the treatment be equally judicious, yet nine out of the ten might die.

Nearly half of the cases that have been brought to this hospital, as far as my own experience extends, have been in the stage of collapse or bordering upon it. They were usually brought in late in the afternoon, and, of course, some hours after the inception of the attack. They have then been comatose, with cold surface, except that of the head, which is often very hot, feeble, frequent, and fluttering pulse, scarcely perceptible at the wrist, dilated and inactive pupils, respiration laboured, sometimes stertorous. Sometimes they have lain perfectly motionless and paralyzed, sometimes restless, sometimes in convulsions. Often, when in this state, under the application of a powerful stimulus to the surface, as burning alcohol to the legs, a patient has sprung up in bed, stared at those around him for a moment, asked for a drink, taken it, and then fallen back again into his former condition. In a less advanced or less severe stage of the disease, the patient has presented pretty much the same symptoms, but in a less marked degree. The pulse is frequent, but not so feeble and irregular; the pupils act feebly; the surface is cool, the head perhaps burning hot; patient is perhaps in a state of partial coma, from which he can be aroused, however, by addressing him by name in a loud tone. The respiration is quick and laboured, but not stertorous; sometimes he has convulsions, quasi epileptic; sometimes he is extremely restless, requiring to be held in bed. In a still earlier or less severe stage, the patient is perhaps able to walk with assistance; complains of intense pain in the head, which is usually hot. The extremities are cool; pulse not much altered, not hard or bounding. No infection of eyes; pupils rather dilated, if altered at all.

Perhaps one or two cases by way of illustration, and briefly stated, would not be amiss here.

C. 1st. A man, name unknown, about forty years of age, was brought to the hospital about noon, July 27th, 1848, and admitted under Dr. H. D. Bulkley. He had fallen in the street a short time previous to admission. Was in a state of complete coma, with laboured and irregular respiration, quick and fluttering pulse, head hot, pupils immovably dilated.

Treatment.—Sinapisms to feet, legs, and stomach. Ice to head, and stimulants. He survived but a few hours.

Autopsy, eighteen hours after death.—Brain normal. *Lungs* slightly congested —crepitant. Other internal organs healthy.

C. 2d. Michael Collyer, native of Ireland, labourer, was admitted under Dr. Griscom, Aug. 11th, 1848, in a state of insensibility, having fallen down in the street. Respiration stertorous, pupils dilated, pulse quick, feeble, and irregular.

Treatment.—Turpentine enema. Sinapisms to chest and limbs—stimulants freely. Patient survived for a short time.

Autopsy, eighteen hours after death.—Brain slightly congested; lungs emphysematous at some points; other organs healthy.

In these cases, as has been seen, there was no marked congestion of the internal organs. In nearly all the cases that occurred in 1850, there was well-marked congestion of these organs; sometimes of the lungs, sometimes of the brain. Thus, out of *eight* cases recorded in our books, there was congestion of the lungs in *two*, and of the brain in four. In one of the remaining two, there was apoplexy, and this man was bled in the hospital, being the only case out of the forty-two in which the lancet was considered admissible; the case proved fatal.

In the remaining case, there were well-marked epileptic convulsions; this

case terminated favourably. The congestion of the brain in two of the four cases was inferred from the symptoms as the cases recovered. In the others, it was revealed by a post-mortem inspection. In no case was *inflammation* of the brain or its membranes observed; and in all the cases the same course of treatment was pursued, with the above-mentioned exception. Cups were applied to the temples in the cases suffering from head symptoms, such as heat, dilated pupils, stertorous breathing, pain; but external and internal stimulation of the most active kind was indicated in all, except perhaps in those admitted in the first degree or stage of the disease. Sometimes the patient was placed in the warm bath, and, at the same time, the cold douche was applied to the head; this usually seemed to have some effect, though but temporary. In the cases which showed congestion of the brain, at the autopsy, the symptoms were still such as to require prompt stimulation, the only difference in the treatment being the local abstraction of the blood from the temples, and the application of ice to the head. I know of one case in private practice, in the year 1847, which occurred in a high liver, of apoplectic build, and showed marked symptoms of apoplexy. The attack yielded with some difficulty to large bleedings.

Insolation is almost uniformly nervous exhaustion, and is to be treated as such. We are not to bleed because the patient is a robust man, and has fallen in a fit at his work, which seems to be the only circumstance taken into consideration usually by the physician who is hurriedly summoned to such a case. The pulse is always a sure guide.

Case of Cæsarian Section. By H. M. Jeter, M. D. [We transcribe from the *Southern Med. and Surg. Journ.* (March, 1851) the following most extraordinary case:—]

On the night of the 4th of December last, Mrs. B., aged thirty years, was taken in labour with her sixth child. I was called at 3 o'clock in the morning to attend her accouchement. I found her with weak and irregular pains, and was informed that such had been their character from the commencement of labour at 9 o'clock. Soon after, however, her pains began to increase, and upon examination per vaginam, I found the os tincæ well dilated and the waters collected in large quantity. The back of the fœtus presented; I waited until the mouth of the uterus was more completely dilated, and ruptured the membranes, discharging an immense quantity of water. I proceeded immediately to turn, so far as to bring down the breech, making a breech presentation. The difficulty attending the operation of turning was so great, in consequence of the extraordinary size of the child, (it being very large,) that I regarded it hazardous to attempt to complete the operation, and left it in this situation to the natural efforts of the womb. After about two hours of very hard labour the breech so far advanced as to enable me to bring down the feet. I essayed by every possible means to assist the efforts of the uterus, by making all the traction upon the inferior extremities of the fœtus that was warrantable, being convinced that the fœtus was dead.

Finding all efforts to make any further advance in its delivery entirely fruitless, I attempted to perforate the cranium, but found it impossible, in consequence of the size of the child, to pass the perforator up to its head. I then eviscerated the fœtus, with the view of passing the instrument up within the cavity of the fœtal thorax to the base of its cranium. This also failed to make room for the operation, without proceeding at random and great consequent hazard to the mother, as I could not insert the hand to give any certain direction to the instrument, the head still being entirely above the superior strait. Embryotomy was therefore determined upon, and after dissecting away the fœtus up to its axillæ, which required about two hours, the mother all the while suffering the most severe labour, but which at this time had ceased to make any impression upon the child, and which induced me to conclude that the uterus had probably ruptured, I found her rapidly sinking, so much so, indeed, that we did not think that she could survive fifteen minutes longer. I determined at once to operate on the Cæsarian section. I gave my patient a stimulant, and, assisted by Dr. Reese, proceeded to make an incision along the linea alba, six inches in length, cutting down carefully to the peritoneum, upon dividing

which, the head of the fœtus presented, showing that my apprehensions were correct in the womb's having ruptured some time previous to the operation. The head of the child was so large that the incision had to be extended to ten inches in length to admit its passage. The head measured twenty-nine inches and four lines in its longitudinal or occipito-frontal circumference, and twenty-eight inches two lines in its perpendicular circumference, being hydrocephalic. The head and remaining portion of the body being removed, the placenta was found also without the uterus within the cavity of the abdomen, and the uterus contracted to about the size of a small cocoa-nut. This being also removed, the cavity of the abdomen was left filled with coagulated blood, from the hemorrhage which took place at the time of the rupture of the womb. Having carefully removed the blood as completely as possible, the wound was closed by the interrupted suture and adhesive straps, leaving a space of about two inches at its inferior extremity, for the discharge of the fluids that might remain or collect in the cavity of the abdomen.

Stimulants were given, and other applications made, to revive the sinking energies of the patient, which had become almost extinct. Reaction soon took place, and she was cleansed and placed in as comfortable a position as the circumstances would admit. The vital energies having been sufficiently resusciated, opiates were given freely. She was kept quiet, and rested comfortably during the night and the following day, until about 9 o'clock on the succeeding night, (the 6th,) when she was taken with violent vomiting, which continued, with intermissions of not more than half an hour, until 10 o'clock the next day, at which time I arrived, having been called off the evening before, and could not return sooner.

We succeeded in soon checking the vomiting, and she rested easy, with occasional return of the vomiting during the day and following night.

Dec. 8th. Patient complains of some soreness about the womb, and over the abdomen generally, which is considerably swollen; pulse 132, and very restless. Administered a clyster, which produced two evacuations; gave her to drink small quantities of cream of tartar and lemonade.

9th. Patient complains of great soreness and tenderness of the abdomen, which is greatly swollen; tongue dry and red, and great thirst; pulse 140, quick and hard; lochial discharges ceased. Put her upon a treatment of calomel and opium; gave injections of warm milk and water per vaginam, and applied flannel, wet with spts. turpentine, to the abdomen.

10th. Soreness and tenderness not so great; discharges from the wound in the abdomen free; lochial discharges also free; pulse 136. Gave clyster, which produced one evacuation.

11th. Soreness and swelling still subsiding; pulse 130, more soft and full; lochial discharges and those from the wound in the abdomen continue freely. Gave small quantities of Dover's powder.

12th. Had one copious alvine discharge during the night, of natural consistence—says she feels much relieved since. The discharges all continue free; pulse 130; wound healing kindly. From this time, nothing of importance occurred to require noting. She continued to improve, and by the 18th day after the operation the wound was entirely healed.

I visited her yesterday for the last time, which was the 29th day since the operation, and found her sitting up by the fire, directing the domestic affairs of her family. Mrs. B. is a woman of apparently very feeble constitution, and had been confined to her bed, for two months previous to her labour, with general anasarca of the whole system.

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On the Law governing the Distribution of the Striped and Unstriped Muscular Fibre.—Dr. H. F. Campbell, Demonstrator of Anatomy in the Med. Col. of Georgia, offers some interesting observations on this subject in the *Southern Med. and Surg. Journ.* (March, 1851), and enumerates the following case as governing the distribution of striped and unstriped muscular fibre:—

"*Wherever celerity and quickness of action* is required in a muscle, *under any circumstances*, we find the *striped fibre* entering into its composition, *without any regard whatever* to *voluntary* or *involuntary motion;* and, further, that the vol-

untary or involuntary character of the muscle has no influence at all on the distribution of these two kinds of fibre. In the establishment of this view, we find arguments abundant throughout the whole muscular system. All the muscles of voluntary motion, it is true, are constituted of the striped fibre; for these are liable, at any time, to be called upon for the most rapid and energetic contraction. On the other hand, the involuntary muscles are found of an unstriped fibre, with the above-mentioned exceptions; but these exceptions we think sufficiently important to invalidate materially the law which refers this distribution to voluntary and involuntary function. In offering the suggestion above made, we have in view the substitution of it as a law which can be of universal application, for one which is embarrassed by exceptions, which this readily, and, to our mind, satisfactorily reconciles."

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Prof. J. E. Cooke's Antilithic Paste.—℞. Castile soap ℥iv; spermaceti ℥viij; Ven. turpentine ʒvj; oil aniseed ʒiij; turmeric ʒij; honey, q. s. Rub the soap and spermaceti well together, then add the turmeric; after rubbing them well, add the turpentine and oil of aniseed, and sweeten with honey.

Of this paste, a piece the size of a nutmeg is given two or three times a day. The diseases in which it is most useful are those in which the mucous membrane is involved. There is a species of hoarseness which follows inflammatory action, and which often approaches aphonia, in which the paste is a valuable remedy. As a diuretic, it is highly extolled.—*West. Journ. Med. and Surg.*, Jan. 1851.

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The Difficulty of Breathing from an Overdose of Opium relieved by Inhaling the Vapour of Water.—The difficulty of breathing, commonly met with in cases of poisoning with opium, is generally ascribed to paralysis of the respiratory muscles caused by the drug; but Dr. C. W. Wright ascribes it (*Western Lancet*, Jan. 1851) to the dryness of the mucous membrane of the lungs, caused by the opium.

"It is absolutely necessary," he remarks, "that the mucous membrane of the lungs should be kept constantly moist, otherwise it is impossible for oxygen gas to be absorbed, and carbonic acid eliminated. It is observed, in some cases of poisoning with opium, that the mouth and fauces become so dry that it is almost impossible for the patient to swallow or speak, and that if the dose is sufficiently large, this dryness may extend into the respiratory organs, and thus give rise to great difficulty of breathing. In these cases the patient is not so much disposed to sleep as when this symptom is not observed.

"Having seen this effect of opium in several cases, I had determined to try the effect of the inhalation of the vapour of water in mitigating the unpleasant symptoms thus induced. This I was enabled to do in my own case, a short time since, from having taken by mistake an overdose of opium, which could not have been less than ten grains. In this instance, the first warning of the mistake I had committed was embarrassed respiration, which soon amounted to an agony, without the least symptom of narcotism. In this case much the same sensation was produced by each inspiration as is experienced by the inhalation of pure nitrogen gas, the air seeming to leave the lungs without having performed its functions, there being at the same time a sense of dryness in the fauces and larynx. In this condition I commenced breathing the vapour of hot water, which produced immediate relief. After this, having ejected the poison from the stomach by an emetic, no unpleasant effect followed.

"When it is remembered that the power which a membrane possesses of absorbing a gas is in proportion to its moisture, and that a dry one is as impenetrable to gases as horn, it is not surprising that the above symptoms should be induced by opium, which, above all other substances, has the property of diminishing the secretion of the mucous membranes. It should also be borne in mind that, by arresting the pulmonary secretion, the blood loses its attraction for the mucous membrane lining the lungs.*

"Probably the best treatment which could be adopted, where this symptom is

* See Liebig's late work on the motion of the juices in the animal body.

observed, would be to allow the patient to inhale the nitrous oxide gas saturated with vapour, which would have the effect of restoring the moisture of the lungs, and presenting oxygen in a much more soluble form than that which enters into the composition of the atmosphere.

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Refracture of a Leg to Improve Defective Surgery.—Prof. Mussey, of Cincinnati, records, in the *Lancet* (Jan. 1851), a case of this occurring in a female who was thrown from a buggy and had both bones of the left leg broken in two places; one three and a half inches below the knee, the other two and a half inches above the ankle.

It was six weeks before the patient began to sit up in bed, and four months before she was able to ride out. She came to Cincinnati in July of the same year. Ever since the injury, the leg had been considerably swollen, and there had not been a day without more or less pain, sometimes severe, extending from the upper fracture to the heel, back of the foot and toes, indicating lesion or compression of the fibular nerves.

Both fractures were firmly consolidated. The lower fracture was well enough, exhibiting no deformity—at the upper one, the leg was sadly bent, exhibiting a prominent external convexity or angle, so great as to shorten the distance from the knee to the inside of the foot about an inch and a half: the plantar surface of the foot looking inward, and its outer edge looking directly downward. Of course, the limb was altogether useless in walking; any attempt to apply the foot to the ground aggravating the pain. It was impossible to place the sole of the foot down flat, or bring the heel within an inch of the ground. The limb was therefore left to swing, while Miss K. moved about upon the other leg and a pair of crutches.

In September, 1848, aided by his son, Dr. Wm. H. Mussey, Prof. M. operated in the following manner. A firm pad, an inch and a half thick, was laid upon the inside of the knee, another upon the inside of the ankle, extending five inches up the leg. A splint of hard wood, one inch thick, and three inches wide, was laid, and secured by a bandage, upon these pads. A broad padded belt was placed over the angular projection of the fracture, and gradually tightened by a mechanical power, derived from Jarvis's adjuster, till the fracture was crushed, and the leg straightened.

The patient, having been placed under the influence of chloroform, was wholly unconscious of pain during the operation, and occupied herself all the while in singing sacred songs, and holding celestial conversation; and while a bandage and splint were being applied to maintain the new position of the limb, finding herself coming to earth again, she entreated most earnestly for more chloroform, to prolong the ecstatic illusion. After the operation, the pain in the leg and foot was diminished, and in two months the fracture was consolidated.

Dec. 12. There is now no pain at the heel, and comparatively little in the leg and foot. The limb has its natural direction, is as long, and apparently as strong as the other. She can now walk with a cane, and limpingly without one.

Feb. 1849. The patient now walks very well without crutch or cane, and only now and then feels slight pain in the leg, the nervous injury having been almost repaired. Some months after the above date, the patient was walking well in the street, as if nothing had happened.

—

Aphonia and Obstinate Cough from Prolongation of the Uvula. Dr. T. C. Ready, of Lexington, Mo., records, in *St. Louis Med. and Surg. Journ.*, Jan. and Feb., 1851, the case of a young lady, who had been unable to speak above a whisper for over four years, during which period she suffered from incessant cough, which she said attacked her after exposure to cold. She had consulted many physicians without relief. Upon examination of the fauces, Dr. R. found the uvula enlarged to an enormous size, about one inch in length, hanging over the rima glottidis, and all the adjoining parts inflamed and engorged with blood. "I immediately came to the conclusion," he says, "that the secret of the

aphonia and coughing was an enlargement and prolongation of the uvula, and determined upon excision of the same, which I did, and in ten minutes after the operation, she could speak as loud as any one in the room, and has continued to improve, from day to day, ever since, so much so that she can now sing a tune in as good style as she could before her attack. A slight coarseness of the voice, and inability to execute high notes in singing, is all the difficulty she experiences. It is a curious fact in this case, that out of some half-dozen physicians who had before attended her, not one had ever examined her mouth and throat, and thus overlooked what would most certainly have relieved her years ago."

[In the second number of this Journal (Feb. 1828), the late Dr. PHYSICK related a case of obstinate cough caused by an elongated uvula, and cured by its excision. He also described an instrument devised by him for the operation.

The celebrated Wiseman, in his *Chirurgical Treatise*, published so long ago as 1676, states that a "frequent hawking" and "vexatious catarrh" is often produced by elongation of the uvula; and he relates a case in which he effected a cure by excising a portion of that organ. See book iv., chap. vii., obs. 8.

This condition of the uvula, we are led to believe, is a frequent cause of obstinate cough, and we take this opportunity of inviting anew the attention of practitioners to it.]

—

Two Cases of Mumps, with Metastasis to the Brain, both terminating fatally. Dr. HARVEY LINDSLY records (*The Stethoscope and Virginia Med. Gaz.*, Jan., 1851) the following examples of this rare accident:—

"In January, 1849, a son of Gen. W., who at the time was a student of medicine and attending the lectures of the medical school in this city, was attacked with the mumps, and after a few days' illness died, as I was informed, from metastasis of the disease to the brain. I cannot give the particulars of this case, as the patient was not under my professional care. On the first day of February following, about a week after the death of this young man, I was requested to see his brother, (ætat. 20,) a student of Princeton College, who was at home on a short visit to his friends. I found him labouring under a well-developed attack of mumps of the left side, the gland considerably swollen, and with some fever, though, on the whole, suffering but slightly, and feeling, as he remarked, very comfortable. The disease seemed to be taking its usual course, and, if it had not been for the recent death in the family, would have excited little interest or observation. As it was, however, his friends felt some anxiety, and I was induced to attend the case more carefully than I should have thought necessary under ordinary circumstances. As precautionary measures, I directed pretty active purgatives, followed by diaphoretics, hot pediluvia, warm flannel to the swollen gland, &c., and watched very closely for any indications of disease of the brain. I could detect nothing of the sort, however, and until the fifth day everything seemed to promise a favourable termination. I examined my patient carefully twice a day, with reference to the condition of the testicles as well as the brain. But there was no apparent disturbance of the functions of the one, and no enlargement of the other. He was cheerful, slept naturally, and felt confident of a speedy recovery. Upon examining him, however, on the morning of the fifth day, my apprehensions were excited by finding that he was labouring under *priapism*. I dreaded this symptom the more, as the disease seemed now to be taking the same turn that proved fatal in his brother's case. He was immediately ordered to be leeched freely at the base of the brain; a blister was applied to the nape of the neck, purgatives given, and an active general antiphlogistic treatment adopted. At the same time, additional professional advice was obtained. During the whole of this day, however, the priapism was the only indication we could detect of diseased brain.

On the next morning we were informed that he had been labouring under delirium the greater part of the night—had been restless, and suffered much. These symptoms continued to increase in violence, convulsions came on, and in a few hours death closed the scene on the sixth day of the disease and the second after the appearance of the priapism.

A careful examination of the brain was made thirty hours after death, when

decided marks of inflammation and congestion were found in the cerebellum, but none in the cerebrum.

—

Dislocation of the Radius and Ulna backwards at the Elbow.—Professor Dugas has published (*Southern Med. and Surg. Journ.*, Jan. 1851) some interesting remarks on this accident, and relates briefly the following seven cases of it which have come under his observation:—

Case I. Miss A. E. H., having sustained an injury of the elbow-joint by a fall from a moderate height, had been treated three weeks with discutient lotions and a nearly straight splint, when I was requested to see her. The attending physician, whom I met in consultation, not agreeing with me as to the nature of the accident, a third physician was called in, who differed from us both. The opinion of a fourth was now requested, and he fortunately concurred with me in the conviction that the bones of the forearm were dislocated backwards. The patient was immediately seated in a strong chair, with the injured arm projecting through the back of it. A little tobacco was put into her mouth to promote a relaxation of the muscles, and when nausea supervened, the dislocation was reduced by pulling the forearm strongly, and at the same time bringing it into a state of complete flexion around the vertical bar of the chair. The arm, being placed in a short sling, and occasionally moved, was, in the course of a few weeks, completely restored to its natural uses.

Case II. This case presents nothing peculiar. It was that of a little girl from South Carolina, about seven years of age, who fell from a chair, and dislocated the elbow-joint. She was sent to me a few days after the accident; the nature of the injury was detected, and reduction immediately effected as in the above case, but without the use of tobacco.

Case III. Mr. St. J. (about thirty years of age) was thrown from his horse with great force, a short distance from the city. It was probably two hours after the accident that I saw him. The arm was semi-flexed, and the tumefaction of the elbow-joint immense. Another physician was requested to see him with me, but differed with me as to nature of the injury. The joint was, therefore, covered with cold lotions, and gently splinted until the next day, when I succeeded in convincing my *confrère* that we had to deal with a dislocation of the joint. The reduction was effected by drawing the forearm around the bedpost until flexion was complete. The case terminated successfully.

Case IV. Mr. W., from one of the lower districts of South Carolina, about twenty years of age, in falling from his horse sustained an injury of the elbow-joint, which was treated with lotions and splints for six weeks before he called upon me. The arm was nearly straight from the continued use of splints, and possessed very limited motion at the elbow. The tumefaction having entirely subsided, the dislocation of both bones backwards was very obvious. After making, in vain, every effort that prudence would permit to reduce the dislocation, I ventured upon the subcutaneous section of the triceps extensor cubiti, just above its attachment to the olecranon, thinking it possible that, by removing what then seemed to be the greatest obstacle to the flexion of the forearm, I might succeed in bending it, and that, even if he lost the use of this important muscle, the permanent flexion of the arm would be better than a permanent straightness. I did, then, succeed in bringing the forearm nearly to a right angle, but without reducing the dislocation. The patient was directed to move the arm daily, and to shorten the sling in which it was kept, from time to time. About five years have now elapsed since the operation, and I have not heard the result.

Case V. This was a case somewhat similar to the last. The gentleman (about twenty-five years of age) resided in one of our upper counties, and had been treated several weeks under a misapprehension of the nature of the injury. He then came to this city, and placed himself under the charge of another physician. I was called in consultation, and we detected a dislocation of the elbow backward. My professional associate administered chloroform, and made every effort to reduce the dislocation, in vain. Under the influence of the powerful aid of Jarvis's adjuster, the attempt to flex the arm resulted in the fracture of the olecranon. This permitted considerable motion of the joint, and the patient left here much improved in that respect—but with the dislocation still existing.

Case VI. This is the case of a robust Irish labourer, whose dislocation was of some weeks standing, when I was requested to assist a professional brother in its reduction. Chloroform was administered, and the most strenuous exertions made without succeeding in the reduction.

Case VII. F. W., a boy seven years of age, fell from a platform about four feet high, and dislocated the bones of the forearm backwards at the elbow-joint. Seeing him a few hours after, the dislocation was readily reduced by traction with my right hand, whilst the other was applied to the bend of the arm so as to press back the bones.

It will be remarked that of the seven cases above reported, three remained with permanent deformity—and that this result was, in these three cases, the consequence of incorrect diagnosis. With these facts before us, the writer trusts that this communication may not appear to be altogether a work of supererogation.

—

An Act to promote Medical Inquiry and Instruction.—[The following act has been introduced by Mr. Tuthill, in the Assembly of the State of New York, March 13, 1851. It has been read twice, and referred to the committee on medical societies and colleges—reported from said committee, and committed to the committee of the whole.]

The People of the State of New York, represented in Senate and Assembly, do enact, as follows:—

Sec. 1. Any physician or surgeon, duly qualified according to the law of this State, or any medical student under the authority of any such physician, may have in his possession human bodies, or parts thereof, for the purposes of anatomical inquiry or instruction.

Sec. 2. Either of the following board of officers, to wit, the overseers of the poor of any town of this State, and the commissioners of health, the city inspector, or the mayor and aldermen of any city of this State, may surrender the dead bodies of such persons as are required to be buried at the public expense, to any regular physician, duly qualified according to law, to be by him used for the advancement of anatomical science; preference being always given to the medical schools, by law established in this State, for their use in the instruction of medical students.

Sec. 3. No such dead body shall in any case be so surrendered, if the deceased person, during his last sickness, requested to be buried, or if, within the twenty-four hours after his death, any person claiming to be of kindred or a friend to the deceased, and satisfying the proper board thereof, shall require to have the body buried, or if the deceased person was a stranger, or traveller, who suddenly dies there, making himself known; but the dead body shall in all such cases be buried.

Sec. 4. Every physician shall, before receiving such dead body, give to the board of officers surrendering the same to him a sufficient bond that each body, so by him received, shall be used only for the promotion of anatomical science or instruction, and that it shall be used for such purpose within this State only, and so as in no event to outrage the public feeling.

[We trust this act will receive the sanction of the legislature, and the code thus be relieved from the glaring injustice and inconsistency of requiring from physicians, under a heavy penalty, a knowledge of anatomy, and forbidding them, by equally severe penalties, from having recourse to the sole means of acquiring it.]

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American Medical Association.—The fourth annual meeting will be held on the first Tuesday (6th) of May, and *not on the second Tuesday*, as announced in some of the journals.

"The Committee of Arrangements request all societies and other institutions authorized to send delegates, to forward a correct list of those selected to attend the next annual meeting to the Secretary, Dr. H. W. De Saussure, at Charleston, S. C., on or before the first day of April.

"In consequence of the resignation of Dr. Stillé, one of the Secretaries, from ill health, all communications intended for the next meeting of the Association must be addressed to the remaining Secretary, Dr. H. W. De Saussure, Charleston, S. C."

INDEX.

Abortion, decision in an indictment for procuring, 525
——— law of Virginia concerning, 525
——— procuring of, 526
——— produced by savin, 529
Abscess in cerebellum, 101
——— in vesicula seminalis, 168
Absorption of alimentary substances, 457
Abstinence, cases of, 55
Acephalous fœtus, 339
Acetate of potash in gonorrhœa, 242
Act to promote medical inquiry and instruction, 544
Adams, hæmoptysis neonatorum, 364
Addison, repair and limitations of cure, 197
Adipose sarcoma of thigh, 387
Adulteration of lac sulphuris, 183
Air, uses and abuses of, 449
Albuminous urine, proximate cause of, 155
American Medical Association, Transactions of, 111
Amputations, statistics of, 178
——— primary and secondary, 238
Anæsthesia and anæsthetics, 429
——— in midwifery, 249
Ancell, chemistry of tubercle, and anatomy of tuberculosis, 462
Aneurism of femoral artery, ligature of external iliac, 239
——— subclavian, 53
——— scrofulous abscess simulating, 157
Ankle, sprains of, 235
Antilithic paste, 540
Appendix vermiformis, gangrene of, 51
Aran, abortive treatment of small-pox, by collodion, 479
——— chloroform in lead colic, 484
Arsenic, poisoning by, 91
Aschendorf, death from chloroform, 257
Atropine, preparation of, by means of chloroform, 203
Atrophy of spinal marrow, 476
Auscultation and percussion, combination of, 479
——— in pneumonia of infants, 480
Axilla, gunshot wound of, 294
Aztec children, 285

Bacon, dumb-bell urinary deposit, 297
Bagot, evil effects from inhalation of chloroform, 458
Barker, child born in the beginning of the sixth month, and reared, 257
Barnes and Sachs, anæsthesia in midwifery, 249
Basham, stricture of œsophagus, 153
Baudens, sprains of ankle, 235
Bazin, treatment of itch, 485
Beaumont, disarticulation of condyle of lower jaw, 162
Beck, medical jurisprudence, 417
Becquerel, treatment of typhoid fever, 207
Bed sores, cotton wadding to, 576
Bernard, absorption of alimentary substances, 457
Bethune, melanosis of eyeball, 41
Betz, bronchocele of new-born infants, 221
Bigelow, fracture of lumbar vertebra, 49
Billing, first principles of medicine, 448
Bird, operations for ovarian disease, 234
Birkett, diseases of breast, 172
Bladder, gun-shot wound of, extraction of bullet from, 157
——— tumour of, 83
Blanchard, protection of pills of iodide of iron, from the air, 204
Blizard, hematocele of tunica vaginalis, 160
Blood, influence of salt diet on, 199
Bond, dental medicine, 444
Boston Society for Medical Improvement, extracts from records of, 38, 319
Boudin on cretinism, 483
Bourgignon, treatment of itch, 485
Boussingault, influence of salt diet in fattening cattle, 199
Bowditch, hæmoptysis, 333
——— case of sudden death, 323
Bowman, hematocele of spermatic cord, 106
Boyer, surgical operations in reference to chloroform, 238
Brain of new-born child, injury of, recovery, 524
——— weight of at different periods of life, 451
Breast, diseases of, 172
Bright's disease, pathology of renal blood-vessels in, 155
Bromide of potassium, action of, 199
Bromine, poisoning by, 262
Bronchocele of new-born infants, 221
Bronchus, foreign body impacted in, 141
Brown, laryngitis, 38
Brucke, structure and uses of Peyer's glands, 195
——— mechanism of inflammatory process, 205
Burn on ventilation, 194
Burnett's fluid, poisoning by, 165
Butler, hydrangea arborescens in lithiasis, 286

Buttons in the intestines, 326
Byford, typhoid fever at Mount Vernon, Ind., 61

Cæsarian section, 245, 521, 522, 538
——— and premature labour, 523
——— operation, causes of non-success, 243
Caillault, stethoscopic sign of detachment of placenta, 247
Calcis, excision of, 162
Callaway, dislocations and fractures of the clavicle and shoulder-joint, 127
Campbell, law governing the distribution of striped and unstriped muscular fibre, 539
Cancer, is fibre an essential element of, 465
Cantharidal ether, and cantharides, &c., 203
Carcinoma of large intestine, 39
——— of lung, 46
Cardiac dropsy, treatment of, 209
Carrot-juice, as a nourishment for infants, 201
Cataract operations, preparatory treatment in, 516
Cazentre, therapeutic properties of cedron, 202
Cedron, therapeutic properties of, 202
Chamberlaine, general paralysis, 101
Chambers, treatment of obesity, 488
Chaplin, poisoning by corrosive sublimate, 49
Chevalier, diseases to which the manufacturers of sulphate of quinine are liable, 528
Child born in sixth month and reared, 257
Chlorinated hydrochloric ether, effects on animals, 459
Chloroform, death from, 257
——— Marshall Hall on use of, 495
——— use of at St. Bartholomew's Hospital, 498
——— surgical operations in reference to, 238
——— evil effects from inhalation of, 458
——— in lead colic, 484
Cholera, chemical researches on nature and cause of, 151
——— treatment of, 76
——— evacuations, salts in, 198
——— epidemic, 217
Chorea and diseases of the heart, 485
——— sulphate of zinc in, 486
Church, femoral aneurism cured by compression, 535
Citrate of soda, 204
Clarke, tumour of bladder, 83
Clarkson, complete intestinal obstruction, colon opened in the loin, 147
Coale, poisoning by corrosive sublimate, 47
——— encysted ovarian tumour, 331
Cocculus indicus, poisoning with, 527
Cod-liver oil in tubercular disease, 21
——— in diseases of the eye, 532
——— in phthisis, 225
Coffee and cafeine, therapeutic employment of, 200
College of Physicians of Philadelphia, proceedings of, 183
Collodion in small-pox, 479
Compression, femoral aneurism cured by, 512, 535
Cooke, antilithic paste, 540
Coup de soleil, 183, 536
Corrosive sublimate, poisoning by, 47, 49, 79
Coste, human gestation, 247
Cotting, imperforate rectum, 336
——— calculus in abscess about tonsil, 337
Cotton wadding to bed-sores and varicose ulcers, 516
Coulson, anatomy of the subcutaneous bursæ, 452
——— treatment of enlarged subcutaneous bursæ, 500
Craninx, vaccination and re-vaccination, 477
Crawford, absence of uterus, 268
Cretinism, 349, 483
Crucial ligament of knee-joint, rupture of, 515
Curare, researches on, 528
Curling, absence of thyroid body, 166

Dalton, new form of phosphate of lime in putrefying urine, 368
Demonstrative midwifery, 270
Dengue, 263
Dickson, dengue, 263
Dislocation of shoulder-joint, 75
——— of scaphoid bone of foot, 237
——— of radius and ulna backwards, 543
Dorvault, iodognosis, 461
Drummond, ligature of femoral artery, 239
Dry gangrene, 241
Duclos, cod-liver oil in phthisis, 225
Duffin, case of ovariotomy, 226
Dugas, gangrenopsis, 267
——— dislocation of radius and ulna backwards, 543
Dulcamara, poisoning with, 257
Dumb-bell crystals, relation of to uric acid and oxalate of lime, 259
——— urinary deposits, 297
Dunglison, new remedies, 447
Durwell, forced flexion for arresting hemorrhage in wounds of palmar arch, 239
Dwarfs, Indian, 285

Ear, polypus of, 337
Ebert, inunction in scarlatina, 225
Ehrmann, polypus of larynx, 410
Elastic fibres in sputa of phthisis, 465
Encephaloid disease between rectum and bladder, and of liver, 323
Encysted tumour containing feces, 390
Epigastric and obturator arteries, origin of, by a common trunk from internal iliac, 239
Etherization, certain phenomena of, 319
Evans, treatment of rubeola by inunction, 267
External iliac, ligature of, 239
Eyeball, melanosis of, 41
Eye, extirpation of, 331

Farrège, polypous excrescences from umbilicus, 524
Femoral aneurism, cured by compression, 512, 535
——— artery, ligature of, 239, 268
Femur, excision of head of, 508
Field, complete intestinal obstruction, colon opened in loin, 147

Flourens, effects of chlorinated hydrochloric ether on animals, 459
Forbes, foreign body impacted in bronchus, 141
Fosgate, sleep psychologically considered, 439
Fracture of first lumbar vertebra, 49
Frick, renal affections, 171
——— relation of dumb-bell crystals to uric acid, 259

Gangrenopsis, 267
Gardette on importance of establishing a lectureship on dentistry in medical colleges, 533
Gestation, human, 247
Gilbert's cases in surgery, 70
Goitre, causes and cure of, 483
Gonorrhœa, acetate of potash in, 242
Gray, protrusion of hand through walls of vagina and rectum, 519
Guerard, hydrocephalus, 109
Guichon, neutral citrate of soda, 204
Gumprecht, carrot-juice, nourishment for infants, 202
Gun-shot wound of left axilla, 294
Guterbock, salts in cholera evacuations, 198

Hæmoptysis neonatorum, 364
Hall, Marshall, on use of chloroform, 495
Hand, protrusion of, through recto-vaginal septum, 519
Hannon, therapeutic employment of coffee and cafeine, 200
Hare-lip, treatment of, 505
Hayward, statistics of amputations, 178
Heart, valvular diseases of, 213
——— structure of muscular substance of, 195
——— fatty diseases of, 157
——— diseases of, and chorea, 485
Helfft, recent epidemic of scarlatina at Berlin, 482
Hematocele, cases of, 160
Hemorrhage in wounds of palmar arch, forced flexion for arresting, 239
Henry, abscess in vesicula seminalis, 168
Hernia with ileus, 166
Hewett, morbid growth from upper jaw, 491
Hilton, acetate of potash in gonorrhœa, 242
Holmes, microscopical anatomy, 339
Homans, buttons in the intestines, 326
Hooper, extirpation of eye for orbital tumour, 331
——— polypus of ear, 337
Horn, terminations of olfactory nerve, 195
——— extirpated from forehead, 50
Hospital gangrene, 240
Household surgery, 177
Huette, action of bromide of potassium, 199
——— hydriodic ether, 203
Hunt, absence of milk after delivery, 525
Hydrangea arborescens in lithiasis, 268
Hydriodic ether, 203
Hydrocephalus cured by hydriodate of potass, 109
Hydrophobia, cure of, 97
Hyndman, collection of pus in uterus, 327

Identity, 524
Idiocy, 349
Impotence, ancient trial for, 525
Infant weighing twenty pounds, 340
Inflammatory process, mechanism of, 205
Inhalation of various medicinal substances, 458
Insane asylums in France, 442
Intermittent fever in Boston, 52
Inunction in scarlatina, 225
Iodide of iron, protection of pills of from air, 204
Iodides, action of, 461
Iodognosis, 461
Iritis with amaurosis, 260
Itch, treatment of, 485

Jackson, carcinoma of large intestine, 39
——— encephaloid tumour between rectum and bladder, 323
——— disease of liver and stomach, 324
——— acute nephritis, latent, 330
——— hot water in sprains, 344
Jacob, preparatory treatment in cataract operations, 516
Japanese remedy for sterility, 249
Jauzer, examination of the genital organs of a young woman assassinated during menstruation, 248
Jenner, identity or non-identity of the specific cause of typhoid, typhus, and relapsing fever, 144
Jeter, Cæsarian section, 538
Johnson, proximate cause of albuminous urine, and pathology of Bright's disease, 155
——— male infant weighing twenty pounds, 341
——— separation of cervix uteri during labour, 342
——— value of chemical and microscopical examination as a means of diagnosis in renal diseases, 466
——— cases of renal disease, 467
——— diagnosis of fatty degeneration of kidney, 374
Jones, albuminous and fatty urine, 169
——— cotton wadding as a dressing to bedsores and varicose ulcers, 516

Keating, poisoning from eating peach-kernels, 191
Kelly, inversion of clitoris and urethra, 261
Kidneys, value of a chemical and microscopical examination of the urine as a means of diagnosis in diseases of, 466
——— cases of disease of, 467
——— fatty degeneration of, 474
Kilgour, treatment of cardiac dropsy, 209
Kneeland, affection of olfactory nerves, with loss of smell, 41
——— certain phenomena of etherization, 319
——— idiotic crania, idiocy and cretinism, 349
Knee-joint, rupture of crucial ligament of, 515
Knox, vaccination as a preventive of smallpox, 477

Lacteals, functions of, 457

Lac sulphuris, adulteration of, 183
Lagae, injury of cranium and wound of brain in a new-born child, recovery, 524
Laryngitis, with inflammation of submucous cellular tissue of trachea, 38
Larynx, polypus of, 410
Lead colic, chloroform in, 484
—— use of in manufacture of sugar, 258
Leclayse, fungous tumour of rectum, 242
Lee, speculum in uterine diseases, 163
—— fibro-calcareous tumours and polypi of uterus, 164
—— Cæsarian section and premature labour, 523
Legendre, diagnosis of tapeworm from the nervous symptoms, 223
Lente, sun-stroke, 536
Letheby, poisoning by Burnet's fluid, 165
Levick, phthisis pulmonalis, and on cod-liver oil in tubercular disease, 21
Lindsly, mumps, with metastasis to brain, 542
Little, puerperal convulsions, 87
Liquor amnii, excessive, 334
Liver, encephaloid disease of, 323, 324
Lloyd, treatment of hare-lip, 505
Lower jaw, disarticulation of left condyle of, 162

Macintyre, mollities and fragilitas ossium, 159
———— report of service of Dr. Hays in Wills Hospital, 531
Maclachlan, scrofulous abscess of anterior mediastinum, 157
Macpherson, gun-shot wound, extraction of bullet from bladder, 157
Malignant tumour on tibia, 337
Martini, dry gangrene, 241
Max-simon, ozæna, 222
McIlvaine, surgical cases, 387
McSherry, treatment of cholera, 76
Medico-chirurgical transactions, 141
Medullary cells of bone, 339
Meigs, adulteration of lac sulphuris, 183
——— woman and her diseases, 193
Melanosis of eyeball, 41
Mench, ovariotomy, 268
Menstruation, examination of genital organs of a woman assassinated during, 248
Mental hygiene, 176
Milk, absence of, after delivery, 525
Morland, extracts from Records of Boston Society for Medical Improvement, 38, 319
Mumps, epidemic, 219, 220
——— with metastasis to brain, 542
Murphy, review of chemistry for students, 448
Muscular fibre, striped and unstriped, law governing distribution of, 539
Mussey, refracture of leg to remedy defective surgery, 541

Namias, atrophy of spinal marrow, 476
Neill, stricture of mucous membrane of stomach, 13
—— peculiarities of sphenoid bone, 191
Nephritis, acute latent, 330
Nerves, remote effects of, injuries of, 306
Nightmare, caused by elongation of uvula, 222
Nimmo, Cæsarian operation, 245
Norman, ovariotomy, 509
Nunnely, anæsthesia and anæsthetic substances, 429
———— hydriodic ether, 203

Obesity, treatment of, 488
Œdema of glottis, 40
Oettinger, cantharidal ether, taffetas, ointment, collodion, 203
Oldham, Cæsarian section, 522
Olfactory nerve, termination of, 195
Opium, difficulty of breathing from an overdose of, relieved by inhaling vapour of water, 560
Ovarian tumour, encysted, 331
———— tumours, spontaneous disappearance of, 509
Ovariotomy, 226, 268, 371, 509, 511
Ovary, displacement of, 255
Ozæna, 222

Page, excision of os calcis, 162
Paget, open urachus, 165
Palmar arch, forced flexion for arresting hemorrhage in wounds of, 239
Paralysis, local, in infancy, 481
Parkman, tracheotomy for œdema of glottis, 40
———— excision of superior maxillary bone, 52
Parsons, remote effects of injuries of nerves, 306
Patterson, iritis with amaurosis, 260
Peach-kernels, poisoning by, 191
Peacock, weight of the brain at different periods of life, 451
Peaslee, double ovarian dropsy, ovariotomy, 371
Pelouse and Bernard, researches on curare, 528
Pennell, stricture of rectum, artificial anus in left lumbar region, 163
Pepper, coup de soleil, 183
——— pseudo-membranous croup, 185
Perineum, central laceration of, 520
Peyer's glands, structure and uses of, 195
Phosphate of iron, new preparation of, 462
Phthisis pulmonalis, cases of, treated in Pennsylvania Hospital, 21
——— prolonged expiratory murmur as a sign of incipient, 169
———— cod-liver oil in, 225
———— elastic fibres in sputa of, 465
Picrotoxine, effects of, 460
Placenta, stethoscopic sign of detachment of, 247
Plaetschke, poisoning with dulcamara, 257
Pneumonia of infants, percussion in, 480
Poisoning by corrosive sublimate, 47, 49, 79
———— by arsenic, 91
———— by peach-kernels, 191
———— with dulcamara, 257
———— statistics of, 258
———— with cocculus indicus, 527
Poggiale, influence of salt diet in blood, 199
Polypus, excrescences from umbilicus of new-born children, 524
——— of larynx, 410
Pope, ligature of femoral artery, 268

Popliteal aneurism, 239, 268
Premature birth, procuring of, 526
Pseudarthrosis permanent, 107
Pseudo-membranous croup, 389
Puerperal convulsions, 87
——— fever, 335

Quain, fatty diseases of heart, 157
Quintuple birth, 524

Rabourdin, preparation of atropine by means of chloroform, 203
Radius and ulna, dislocation of backwards, 543
Rainey, round ligament of uterus, 455
Ready, aphonia and cough from prolongation of uvula, 541
Rectum, fungous tumour of in children, 242
——— stricture of, artificial anus in left lumbar region, 163
——— imperforate, 336
Redfern, origin of epigastric and obturator arteries by a common trunk from internal iliac, 239
——— is fibre an essential element in structure of cancer, 465
Redwood, use of lead in manufacture of sugar, 258
Refracture of leg, 541
Remack, structure of muscular substance of heart, 195
Renal diseases, 466, 467
——— affections, Frick on, 171
Ressiguier, epidemic mumps, 220
Restelli, primary and secondary amputations, 238
——— hospital gangrene, 240
Re-vaccination in Prussian army, 478
Ricord, illustrations of syphilis, 426
Rigby, displacement of ovary, 255
Rilliet, epidemic mumps, 219
Robertson, fistula of stomach, 457
Robinson, poisoning by arsenic, 91
Roger, combination of auscultation and percussion, 479
Roubaix, causes of non-success of Cæsarian operation, 243
Routh, new preparation of phosphate of iron, 462
——— physiological effects of picrotoxine, 460
Rubeola, treatment by inunction, 267

Salisbury, abortion brought on by savin, 529
Sanitary commission of Massachusetts, report of, 391
Savin, abortion produced by, 529
Sayre, poisoning by bromine, 262
Scaphoid bone, dislocation of, 237
Scarlatina, epidemic of, at Berlin, 482
——— inunction in, 225
Schroeder Van der Kolk, elastic fibres in sputa of phthisis, 465
Scirrhous tumour of rectum and bladder, 329
Shattuck, report on sanitary survey of Massachusetts, 391
Shoulder-joint, dislocations and fractures of, 127
——— amputation at, 338
——— dislocation of, 75
Simple valvular diseases of the heart, 213
Simpson, local paralysis in infancy, 481
Skey, use of chloroform at St. Bartholomew's Hospital, 498
Sleep psychologically considered, 439
Smith, treatment of pseudarthrosis, 107
——— ligature of external iliac, 239
Smyly, femoral aneurism cured by compression, 512
Snow, inhalation of various medicinal substances, 459
Solly, ileus complicated by hernia, 166
Soubervielle, horn extirpated from forehead, 50
South, household surgery, 177
Speculum in uterine diseases, 163
Sphenoid bone, peculiarities of, 191
Spinal marrow, atrophy of, 476
Sprains, hot water in, 344
——— of ankle, 235
Sputa of phthisis, elastic fibres in, 465
Staphyloma, convex, 531
Stark, rupture of crucial ligament of knee-joint, 515
Sterility, japanese remedy for, 269
Stomach, fistula of, 457
——— structure of mucous membrane of, 13
Storer, collection of pus in uterus, 327
——— carcinoma of lung, 46
——— excessive liquor amnii, 334
——— gangrene of appendix vermiformis, 51
——— puerperal fever, 335
Strangulated inguinal hernia, 388
Stricture, new instruments for, 513
——— of œsophagus, 153
Subclavian aneurism, dissection after operation, 53
Subcutaneous bursæ, anatomy of, 452
——— bursa, treatment of enlarged, 500
Sulphate of quinine, diseases to which manufacturers of are liable, 528
——— of zinc in chorea, 486
Sun-stroke, 536
Superior maxillary bone, 52
Sutton, typhoid fever, 418
Sweetser, mental hygiene, 176
Syphilis, illustrations of, 426

Tamplin, ununited fracture of tibia, 237
Tapeworm, diagnosis of, 223
——— causes and symptoms of, 224
Taste and smell, identity of, 41
Taylor's Medical Jurisprudence, 417
——— dissection of a case in which ovariotomy had been attempted twenty-five years before, 511
——— cases of abstinence, 55
Thatcher, central laceration of perineum, 520
Thayer, intermittent fever originating in Boston, 52
Thompson, chemical researches on nature and cause of cholera, 151
——— prolonged expiratory murmur as a sign of incipient phthisis, 169
Thyroid body, absence of, 167
Tibia, ununited fracture of, 237

Tilt, diseases of menstruation, ovarian inflammation &c., 448
Townsend, acephalous fœtus, 339
Toynbee, on non-vascularity of certain animal tissues, 457
Tracheotomy for croup, 389
——— for removal of foreign bodies, 74
——— for œdema of glottis, 40
Trousseau, auscultation in pneumonia of infants, 480
Tubercle, chemistry of, 462
Tubercular disease, cod-liver oil in, 12
Tuberculosis, pathology of, 462
——— chorea and diseases of the heart, 485
Typhoid fever, treatment of, 207
——— Sutton on, 418
——— at Mt. Vernon, Ind., 61
Typhus, typhoid, and relapsing fevers, identity or non-identity of cause of, 144

Umbilicus, polypous excrescences from, 524
Ununited fracture of tibia, 237
Urachus, open, 165
Urine, albuminous and fatty, 169
——— new form of phosphate of lime in, 368
——— value of a chemical and microscopical examination of, as a means of diagnosis in renal diseases, 466
Uterus, absence of, 268
——— collection of pus in, 327
——— fibro-calcareous tumours and polypi of, 164
——— round ligament of, 455
——— separation of cervix during labour, 342
——— speculum in diseases of, 163
Uvula, aphonia from prolongation of, 541
——— nightmare caused by elongation of, 222

Vaccination as a preventive of small-pox, 477
——— and re-vaccination, 477
Valvular diseases of heart, 213
Vanden-Corput, therapeutic employment of coffee and cafeine, 200
Varicose ulcers, cotton wadding to, 516
Variola, treated by collodion, 479
Ventilation, 194
Vertebra, fracture of first lumbar, 49
Vesicula seminalis, 168

Wakley, new instruments for stricture, 513
Walker, dislocation of scaphoid bone of foot, 237
——— on ventilation, 194
Walton, excision of head of femur, 508
Ware, puerperal fever, 335
Warren, appearances on dissection after ligature, for subclavian aneurism, 53
——— address before the American Medical Association, 447
——— cancerous tumour of arm, amputation at shoulder-joint, 338
——— Indian dwarfs, 285
——— malignant tumour from periosteum of tibia, 337
——— scirrhous tumour of rectum and bladder, 329
Watson, ligature of left subclavian, 294
——— femoral aneurism cured by compression, 535
Wawruch, causes and symptoms of tape-worm, 224
Webster, Provincial Insane Asylums in France, 442
West, nightmare caused by elongation of uvula, 222
——— Cæsarian section, 521
Williams, poisoning by corrosive sublimate, 79
——— Japanese remedy for sterility, 249
——— epidemic cholera, 217
Wilson, hydrophobia, 96
Woman and her diseases, 193
Wound, legal definition of, 526
Wright, difficult breathing from an overdose of opium relieved by inhaling vapour of water, 540

Yeoman, consumption, 449

GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA,

MARCH, 1851.

At a Public Commencement, held on the 8th of March, 1851, the degree of Doctor of Medicine was conferred on the following gentlemen by the Hon. Edward King, President of the Institution; after which a Charge to the Graduates was delivered by Professor Mütter.

NAME.	STATE.	SUBJECT OF THESIS.
Abbitt, William B.	Virginia.	Remittent Fever.
Albright, Durant H.	North Carolina.	Menstruation and its Diseases.
Armistead, William B.	Alabama.	Typhus.
Baily, Elisha S.	Pennsylvania.	Peculiarities of the Fœtal Circulation.
Baily, R. Jones	Pennsylvania.	Anatomy and Physiology of the Cerebellum.
Barber, James K.	Ohio.	Ergot.
Bateman, Ephraim	New Jersey.	History of Syphilis.
Bates, James M.	Maine.	Acute Pneumonia.
Battle, Lucius Lucullus (M. D.)	Tennessee.	Deleterious effects of Atmospheric Air when introduced into the Venous System.
Beaver, Ephraim K.	Pennsylvania.	Responsibilities of the Medical Profession.
Berry, William Frederic	North Carolina.	Typhoid Fever.
Black, Abraham	Virginia.	Delirium Tremens.
Bly, Douglas	New York.	Reduction of the Femur without extension when Luxated on the Dorsum Ilii.
Bobb, William H.	Pennsylvania.	Cathartics.
Booth, William C.	Virginia.	Autumnal Remittent Fever.
Boswell, John J.	Virginia.	Comparative Physiology of Digestion.
Brannock, James M.	North Carolina.	Typhoid Fever.
Brinker, Reuben	Pennsylvania.	Acute Meningitis.
Brooks, John G.	Maine.	Acute Gastritis.
Brownrigg, John	Mississippi.	Congestive Fever.
Brubaker, Henry	Pennsylvania.	Acute Pleurisy.
Burnett, Elisha G.	New York.	Ergot.
Campbell, Algernon E.	Virginia.	Pneumonia.
Carnal, Reuben H.	Louisiana.	Typhoid Fever.
Carriger, John H.	Tennessee.	The Young Physician; his Hopes, Fears, and Responsibilities.
Carrington, Paul S.	Virginia.	Pneumonia.
Carter, Flournoy	Georgia.	Pneumonia.
Cary, Charles W.	Virginia.	Arsenic and its Compounds.
Cheney, Francis M.	Georgia.	Typhoid Fever.
Christian, William S.	Virginia.	"Propter solum Uterum Mulier est id quod est."
Coleman, Charles T.	Virginia.	Digestion.
Coleman, Richard M.	Virginia.	Urinary Calculi.
Collins, Thomas B.	New York.	Pathology of Pneumonia.
Conner, William H. H.	North Carolina.	Pneumonitis.
Cook, Columbus L. (M. D.)	North Carolina.	Importance of Study to the Medical Practitioner.
Cook, George H.	Pennsylvania.	Sympathy between the Mind and Body.
Couse, George	Canada.	Delirium Tremens.
Craig, James W.	New York.	Local Blood-letting.
Crouse, William	Pennsylvania.	Dysentery.
Cutliff, James S.	Louisiana.	Embryogeny.
Dana, Charles H.	Pennsylvania.	Cynanche Trachealis.
Davidson, Henry G. (M. D.)	Virginia.	Comparative Anatomy and Physiology of the Digestive System.
Dickson, James G.	Pennsylvania.	Lymphosis.
Dingee, Richard	Pennsylvania.	Hygiene.
Dingley, Amasa J.	Maine.	Morbid Conditions of the Blood.
Duffey, John W.	Georgia.	Acute Hepatitis.

NAME.	STATE.	SUBJECT OF THESIS.
Dulany, U. Heath	Virginia.	Entero-mesenteric Fever.
Duncan, George K.	Tennessee.	Acute Gastritis.
Edmonds, Samuel C.	New Jersey.	Hectic Fever.
Eggleston, Joseph D.	Virginia.	Urinary Calculi.
Eshleman, Isaac S.	Pennsylvania.	Congestion.
Evans, J. Mason	Virginia.	Entero-mesenteric Fever.
Evans, Joshua R.	Pennsylvania.	Epidemic Cholera.
Fearing, Benjamin, Jr.	Massachusetts.	Phlegmatia Dolens.
Fisher, Preston	Maine.	Cynanche Trachealis.
Fitts, William F.	Alabama.	Oleum Terebinthinæ.
Fleming, Thomas M.	Virginia.	Digestion.
Flewellen, Edward A.	Georgia.	Cinædia.
Floyd, Frederic	Virginia.	Pathological Hæmatology.
Foote, Charles C.	Connecticut.	History and Medical Properties of Ergot.
Fort, Joseph M.	Texas.	Acute Gastritis.
Fox, Joseph M.	Kentucky.	Typhus Fever.
Friend, John Edward (M. D.)	Virginia.	Entero-mesenteric Fever.
Friend, George W.	Virginia.	Phrenology.
Fussell, Morris	Pennsylvania.	The Decidua.
Gaddis, Elijah Franklin	Alabama.	Malaria.
Gaither, Brice T.	Georgia.	Typhoid Fever in Middle Georgia.
Gale, Robert H.	Kentucky.	Milk Sickness.
Gary, Franklin F.	South Carolina.	Endemic Fever of Cokesbury, South Carolina.
Geare Frederic (M. D.)	New York.	Phthisis Pulmonalis.
Gegan, John, Jr.	Pennsylvania.	Intermittent Fever.
Gibbons, Thomas P.	Pennsylvania.	Certain Diseases of the Diastaltic Nervous System.
Glenn, Lucius B.	Alabama.	Acute Pleurisy.
Golding, Walter S.	North Carolina.	Laryngo-tracheitis.
Gorin, William H.	Kentucky.	Albuminuria.
Griesemer, Enoch E.	Pennsylvania.	Acute Rheumatism.
Haggard, William D.	Kentucky.	Entero-mesenteric Fever.
Hall, Samuel E.	Georgia.	Rheumatic State of Fever.
Hall, William M.	Tennessee.	Enteric Fever.
Hamer, Ellis P.	Pennsylvania.	Pleurisy.
Hamilton, George S.	Virginia.	Intermittent Fever.
Hancock, Charles	Virginia.	Typhoid Fever.
Hassenplug, Jacob H.	Pennsylvania.	Iodine and its Therapeutical Effects.
Havis, Minor W.	Georgia.	Menstruation.
Hazlett, Robert W.	Pennsylvania.	Physic.
Henderson, Andrew J.	Virginia.	Gunshot Wounds.
Herrick, J. Everette	New Hampshire.	Erysipelas.
Hershe, Christian	Iowa.	Pneumonia.
Heyward, James F.	Delaware.	A new Method of Dissolving Calculi in the Bladder.
Holbrook, William S.	Virginia.	Placenta Prævia.
Hood, Humphrey H.	Pennsylvania.	Inflammation.
Hope, Jesse P.	Virginia.	Inflammatio Pleuræ.
Howitt, John	Canada.	Acute Bronchitis.
Hume, William	Canada.	Acute Dysentery.
Hunter, George Baxter	Virginia.	Responsibilities of the Physician.
Huntington T. Romeyn	New York.	Scarlatina.
Huston, James M.	Virginia.	The Pulse.
Irvine, Patrick C. (M. D.)	Virginia.	Pneumonia.
Jackson, Winslow	Massachusetts.	Scarlatina.
James, Nathan	Pennsylvania.	Angina Membranacea.
Jenkins, William A.	Virginia.	Pneumonia.
Johnson, Emmanuel H.	Pennsylvania.	Endo-gastritis.
Johnson, William M.	North Carolina.	Dystocia Abortiva.
Judson, Oliver A.	Pennsylvania.	Iritis.
Kelly, Samuel H.	Virginia.	Cephalalgia Nervosa.
Keenon, John G.	Kentucky.	Pneumonia.
Keys, John	Pennsylvania.	Catalepsy.
Lamm, William A. B.	Georgia.	Epidemic Erysipelas.

NAME.	STATE.	SUBJECT OF THESIS.
Lane, E. L. C. (M.D.)	Illinois.	De Febribus Miasmaticis in Illinois Septentrionali.
Layton, Joseph	Ohio.	Oblique Inguinal Hernia.
Leinbach, Benjamin S.	Pennsylvania.	Rural Practitioner.
Lemmon, William	Pennsylvania.	Typhoid Fever.
Lewis, J. Henry	Texas.	Lobelia Inflata.
Line, William M.	Pennsylvania.	Intermittent Fever.
Lovejoy, James W. H.	Dist. of Columbia.	Acute Rheumatism.
Luckett, Francis E.	Virginia.	Pneumonia.
Mackey, James Howard	Pennsylvania.	Oblique Inguinal Hernia.
Madison, Robert L. (M. D.)	Virginia.	Comparative Anatomy and Physiology of the Nervous System.
Martin, William Henry	Kentucky.	Modus Operandi of Medicines.
Matteson, John C.	New York.	Acute Pneumonia.
McCorkle, John R.	North Carolina.	Dysentery.
McClung, John A.	Virginia.	Intermittent Fever.
McGrigor, Thompson L.	Virginia.	Puerperal Peritonitis.
McGuire, John G.	Pennsylvania.	Electricity.
McIntyre, De Witt C.	New York.	Anatomy and Physiology.
McNutt, Robert	Delaware.	Acute Rheumatism.
McWhinney, Arthur	Pennsylvania.	Meningitis Tuberculosa.
Meigs, James Aitken	Pennsylvania.	Hygiene and Therapeutics of Temperament.
Meisenhelder, Samuel	Pennsylvania.	Remittent Fever.
Mellen, George F.	Maine.	Necrosis.
Merritt, William (M. D.)	Virginia.	Comparative Physiology of the Circulation.
Miller, William Lamech	Pennsylvania.	Anæmia.
Miller, William Robards	North Carolina.	The Ovaries.
Milligan, Francis H.	Missouri.	Placenta Prævia.
Moodey, Joseph H.	Pennsylvania.	Variola.
Moody, Thomas H.	Tennessee.	Physiology of Digestion.
Moore, Ira L.	Massachusetts.	Typhoid Fever.
Moore, Mathew S.	South Carolina.	Mercury as a Therapeutic Agent.
Moore, Maurice A.	South Carolina.	Dyspepsia.
Morris, George W.	South Carolina.	Cinchona.
Morrison, M. Porter	Pennsylvania.	Modus Operandi of Medicines.
Mulford, Francis D.	New Jersey.	Tubal Fecundation.
Mullins, James C.	North Carolina.	Delivery of the Placenta.
Neff, Henry K.	Pennsylvania.	Anatomy and Physiology of the Heart.
Nice, Franklin B.	Pennsylvania.	Intermittent Fever.
Nice, George W.	Pennsylvania.	Cholera Infantum.
Oaks, Samuel	Pennsylvania.	Death.
Oden, J. Beverly	Virginia.	Percussion.
Overton, William M.	Virginia.	Entero-mesenteric Fever.
Owens, Bennett G.	Alabama.	Typhoid Fever.
Parker, Oscar F.	New York.	Rubeola.
Perkins, Joseph B.	Mississippi.	Pneumonia.
Perkins, Lewis W.	Virginia.	Remittent Fever.
Peterson, Bowman H.	New Jersey.	Typhoid Fever.
Phillips, William W. L.	New Jersey.	Menstruation.
Piatt, William A.	Pennsylvania.	Typhoid Fever.
Poindexter, Edward H.	Virginia.	Colica Pictonum.
Pratt, J. Richmond	New York.	Prognosis.
Proctor, Pelatiah R.	Canada.	Spinal Irritation.
Rankin, E. Davidson	Pennsylvania.	Moral Character of the Physician.
Rankin, William M.	Pennsylvania.	Retroversion of the Uterus.
Reddick, Samuel T.	Pennsylvania.	Entero-mesenteric Fever.
Reese, Beverly P.	Virginia.	Dysentery.
Ridgill, Henry L.	South Carolina.	Malaria.
Robinson, Frederic C.	Ohio.	Icterus.
Rogers, Henry R.	Maine.	Rubeola.
Roper, Daniel W.	Kentucky.	Acute Meningitis.
Rose, Latinus Irvine	Virginia,	Rubeola.
Ruby, Cyrus B.	Pennsylvania.	Dysentery.

NAME.	STATE.	SUBJECT OF THESIS.
Rugh, Jacob W.	Pennsylvania.	Acute Peritonitis.
Russell, Preston W.	Pennsylvania.	Electricity, and its application to Electrolysis.
Sandford, Robert J.	Virginia.	Nephritis.
Saunders, Samuel	Virginia.	Functions of some parts of the Human Frame.
Schively, George Singer	Pennsylvania.	Pneumonia.
Scofield, John S.	Kentucky.	Mechanism of the First Position of the Vertex.
Scott, A. Howard	Virginia.	Placenta Prævia.
Scott, William Walter	North Carolina.	Pneumonia.
Sharpe, William R.	North Carolina.	Pneumonia.
Simmons, Allen J.	Georgia.	Adynamic Fever.
Smith, Albert D.	Vermont.	Mercury.
Smith, Bart M.	Georgia.	Procreation.
Smith, James Gregory	Kentucky.	Inquiry into the Circulation.
Smith, Pembroke	Virginia.	Scarlatina.
Smith, Sandford F.	Missouri.	Acute Diarrhœa.
Smith, Walter R. (M.D.)	North Carolina.	Pneumonia.
Spruill, George E.	North Carolina.	Endo-gastritis.
Squire, William H.	Pennsylvania.	Hydrocele and Hæmatocele.
Statler, Samuel G.	Pennsylvania.	Scarlatina.
Stoakley, William S.	Virginia.	Dropsy.
Stocker, Jesse	Virginia.	Reproduction.
Stone, Samuel A.	Virginia.	Remittent Fever.
Stoner, John	Pennsylvania.	Medical Experience.
Suesserott, Jacob L.	Pennsylvania.	General Bloodletting.
Taylor, James	Pennsylvania.	Digestion.
Taylor, J. Marcus	Mississippi.	Typhoid Fever.
Taylor, Julian	Virginia.	Hysteria.
Thom, J. Pembroke	Virginia.	Oxygen.
Thomas, Robert W.	North Carolina.	Puerperal Peritonitis.
Thompson, Stephen S.	Kentucky.	General Indications.
Thomson, John A.	Delaware.	Malformations and their Causes.
Tipton, Richard H.	Ohio.	Hysteria.
Tullis, Thomas Erskine	Alabama.	Epidemic Dysentery as it occurred in Geneva, Georgia, in the summer of 1849.
Turner, Charles P.	Pennsylvania.	Causes of Deafness.
Tyson, John Ambrose	Tennessee.	Pneumonia.
Umstad, Henry U.	Pennsylvania.	Puerperal Fever.
Vaughn, George W.	Alabama.	Melituria.
Venable, Richard N.	Virginia.	Report on Puerperal Fever.
Vernon, Elias	Canada.	Accidental Hemorrhage.
Vollum, Edward P.	New York.	Aneurism.
Wallace, James J.	Pennsylvania.	Scarlatina.
Walser, Theodore	Switzerland.	Assimilation.
Ward, Erastus B.	Virginia.	Entero-mesenteric Fever.
Ward Meredith G.	Tennessee.	Acute Hydrocephalus.
Warren, Edward (M.D.)	North Carolina.	Scarlatination.
Weeks, William C.	Virginia.	Gonorrhœa.
Weir, John M.	Virginia.	Toxicology.
West, William H. Jr.	Virginia.	Conduct of Natural Labour.
Wilson, John W.	Virginia.	Physiology of Respiration.
Wingfield, Alonzo C.	Georgia.	Empiricism.
Witman, Henry O. (M.D.)	Pennsylvania.	Acute Dysentery.
Wolf, John A.	Pennsylvania.	Entero-Mesenteric Fever.
Wood, Charles S.	Connecticut.	Menstruation.
Wright, Thomas E.	Virginia.	Pneumonia.
Wyker, Alfred	New Jersey.	Menstruation.
Young, George W.	Missouri.	The Heart.

The *ad eundem* degree of Doctor of Medicine was conferred on Thomas G. Meachem, M. D., and on Charles G. Pomroy, M. D., of New York.

Total, 227.

R. M. HUSTON, M.D., *Dean of the Faculty.*

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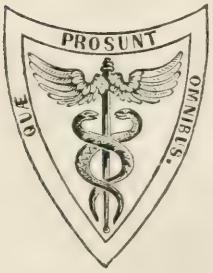
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The following works have been received:—

General Index to the first thirty-three volumes of the Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. London: Longman & Co., 1851. (From the Society.)

Journal of the Ethnological Society of London, vol. ii. 1850. (From the Society.)

Guy's Hospital Reports, Second Series, vol. vii. Part I. London, 1850.

Phthisis and the Stethoscope. A concise Practical Guide to the Physical Diagnosis of Consumption. By Richard Payne Cotton, M. D., M. R. C. P. L. London: John Churchill, 1851. (From the Author.)

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Quarterly Summary of the Transactions of the College of Physicians of Philadelphia, from November 5th, 1850, to January 6th, 1851, inclusive. (From the College.)

Urinary Deposits: their Diagnosis, Pathology, and Therapeutical Indications. By Golding Bird, M. D., &c., &c., &c. Second American, from the third revised and enlarged London edition. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

Letters to a Candid Inquirer, on Animal Magnetism. By Wm. Gregory, M. D., F. R. S. E. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

The Pharmacopœia of the United States of America. By authority of the National Medical Convention, held at Washington, A. D., 1850. Philadelphia: Lippincott, Grambo & Co., 1851. (From the Publishers.)

A Practical Treatise on the Diseases and Injuries of the Urinary Bladder, the Prostate Gland, and the Urethra. By S. D. Gross, M. D., Prof. of Surgery in the University of Louisville, &c. &c. With 106 illustrations. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

Minor Surgery, or Hints on the Every Day Duties of the Surgeon. By Henry H. Smith, M. D., Assistant Lecturer on Clinical Surgery in the University of Pennsylvania; one of the Surgeons to the St. Joseph's Hospital; Lecturer on the Principles and Practice of Surgery in the Philadelphia Medical Institute, etc. Third edition, with numerous additions. Illustrated by 247 engravings. Philadelphia: Edmond Barrington & George D. Haswell, 1850. (From the Publishers.)

The Physician's Prescription Book: containing list of terms, phrases, contractions, and abbreviations used in prescriptions, with explanatory notes; also the grammatical construction of prescriptions, &c., &c. To which is added a Key containing the prescriptions in an unabbreviated form, with a literal trans-

lation, intended for the use of Medical and Pharmaceutical Students. First American, from the tenth London edition. Philadelphia: Lindsay & Blakiston, 1851. (From the Publishers.)

Bulwer and Forbes on the Water Treatment. A compilation of papers on the subjects of Hygiene and Rational Hydropathy. Edited, with additional matters, by Roland S. Houghton, A. M., M. D. New and revised edition, stereotyped; with additions and improvements. New York: Fowler & Wells, Publishers, 1851. (From the Publishers.)

Lectures on the Eruptive Fevers; as now in the course of delivery at St. Thomas's Hospital, in London. By George Gregory, M. D., Fellow of the Royal College of Physicians of London; Physician to the Small Pox and Vaccination Hospital at Highgate; Corresponding Member of the National Institute of Washington, etc. First American edition, with numerous additions and amendments by the Author, comprising his latest views. With notes and an appendix, embodying the most recent opinions on Enthematic Pathology; and also statistical tables and coloured plates, by H. D. Bulkley, M. D., Physician of the New York Hospital; Fellow of the New York College of Physicians and Surgeons, etc., etc. New York: S. S. & W. Wood, 1851. (From the Publishers.)

Intermarriages; or the Modes in which, and the Causes why, Beauty, Health, and Intellect result from certain Unions, and Deformity, Disease, and Insanity, from others, demonstrated by Delineations of the Structures and Forms, and Descriptions of the Functions and Capacities which each Parent in every pair bestows on Children, in conformity with certain Natural Laws, and by an account of corresponding effects in the Breeding of Animals. With eight illustrative drawings. By Alexander Walker. Philadelphia: Lindsay & Blakiston, 1851. (From the Publishers.)

Proceedings of the Medical Association of the State of Alabama, begun and held in the city of Mobile, December 10–14, 1850. With an Appendix. Mobile, 1851.

Report of a Committee appointed by the Academy of Medicine, upon the Comparative Value of Milk, formed from the slop of Distilleries and other Food, with Chemical and Microscopical Analyses. By Augustus K. Gardner, M. D., Chairman. Read March 1st, 1848. New York, 1851. (From the Author.)

The Present Tendency of Investigation in Medicine. An Address delivered before the Suffolk District Medical Society, at its Second Anniversary Meeting, Boston, March 28th, 1851. By Samuel Parkman, M. D., M. M. S. S., one of the Surgeons of the Mass. Gen. Hospital. Published by request of the Society. Boston, 1851. (From the Author.)

An Address, delivered before the Graduating Class of the Medical College of Georgia, March 1851. By Charles Todd Quintard, M. D. of Boswell. Published by the Faculty. Augusta, Geo., 1851.

Eighth Annual Report of the Managers of the State Lunatic Asylum of the State of New York, made to the Legislature February 27th, 1851. Albany, 1851.

By-Laws of the Pennsylvania State Lunatic Asylum at Harrisburg, with the Acts of the Legislature establishing the same. Harrisburg, 1851. (From Dr. Curwen.)

Thirty-Fourth Annual Report on the State of the Asylum for the Relief of Persons deprived of the Use of their Reason. Philadelphia, 1851.

Essays on Asylums for Persons of Unsound Mind. By JOHN M. GALT, M. D. Richmond, 1850.

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A Contribution to the Statistics of Rupture of the Urinary Bladder, with a table of seventy-eight cases. By STEPHEN SMITH, M. D., Assistant Surgeon to Bellevue Hospital, New York. (New York, 1851.)

Charge to the Graduates of Jefferson Medical College of Philadelphia, delivered March 8th, 1851. By Prof. T. D. MUTTER. Philadelphia, 1851. (From the Author.)

An Address to the Graduates of the Medical Department of the St. Louis University. Delivered Feb. 28th, 1851. By A. LITTON, M. D. Prof. of Chem. and Pharm. St. Louis, 1851. (From the Author.)

Address to the Graduates of Washington University of Baltimore. By THOS. E. BOND, M. D. Baltimore, 1851.

Medical Commencement of the University of Pennsylvania, held on Saturday, April 5th, 1851, with the Valedictory. By W. E. HORNER, M. D., Prof. of Anat. Second edition. Philadelphia, 1851. (From Dr. Horner.)

Comparative Intellectual Standing of the Medical Profession. An Introductory Address. By E. R. PEASLEE, A. M., M. D., Prof. Anat. and Surg. in the Medical School of Maine. Session of 1851. Concord, 1851.

Catalogue of the Officers and Students of Starling Medical College for the Session of 1850–51. Columbus, 1851.

Catalogue of the Officers and Students of the Western Reserve College, 1850–51. Hudson, O. 1851.

Catalogues of the Trustees, Faculty, and Students of the Medical College of the State of South Carolina. Session of 1850–51. Charleston, 1851.

The Annual Announcement of the Medical Department of the University of the State of Missouri. Session of 1850–51–52. St. Louis, 1851.

The following Journals have been received in exchange:—

Gazette Médicale de Paris, November, December, 1850. January, February, 1851.

Revue Médicale Française et Etrangère. Par J. B. CAYOL, D. M. P., &c. &c. Oct., Nov., Dec., 1850.

Annales Médico-Psychologiques. Journal destiné à recueiller tous les documents relatifs à l'aliénation mentale, aux névroses, et à la Médecine Légale des aliénés. Par MM. les Docteurs BAILLARGER, BRIERRE DE BOISMONT, et CERISE. Jan. 1851.

Journal des Connaissances Médico-Chirurgicales. Publié par le Dr. A. MARTIN LAUZER. Nov., Dec., 1850. Jan., Feb., 1851.

Journal des Connaissances Médicales Pratiques et de Pharmacologie. Oct., Nov., Dec. 1851.

Zeitschrift für die gesammte Medicin. Herausgegeben. Von F. W. Oppenheim. May, June, July, Aug. 1850.

The Edinburgh Medical and Surgical Journal. April, 1851.

The British and Foreign Medico-Chirurgical Review. April, 1851.

The London Medical Gazette. March, April, May, 1851.

Monthly Journal of Medical Science. April, May, June, 1851.

London Journal of Medicine. April, May, June, 1851.

The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. April, 1851.

The Dublin Quarterly Journal of Medical Science. May, 1851.

The Medical Times. March, April, May, 1851.

Provincial Medical and Surgical Journal. Edited by W. H. Ranking, M. D., and J. H. Walsh, Esq. March, April, May, 1851.

British American Medical and Physical Journal. Edited by Archibald Hall, M. D. April, May, 1851.

The American Journal of Insanity. Published by the New York State Lunatic Asylum, Utica. April, 1851.

The Western Lancet. Edited by Drs. L. M. Lawson and Geo. Mendenhall. April, May, June, 1851.

Southern Medical and Surgical Journal. Edited by L. A. Dugas, M. D. April, May, June, 1851.

Buffalo Medical Journal. Edited by Austin Flint, M. D. April, May, June, 1851.

The New Jersey Medical Reporter, and Transactions of the New Jersey Medical Society. Edited by Joseph Parrish, M. D., Burlington. April, May, June, 1851.

Nashville Journal of Medicine and Surgery. Edited by W. K. Bowling, M. D. Feb., April, 1851.

The American Journal of Dental Science. Edited by Chapin A. Harris, M. D., D. D. S., and Alfred A. Blandy, M. D., D. D. S. April, 1851.

The New Orleans Medical and Surgical Journal, devoted to Medicine and the Collateral Sciences. A. Hester, M. D., Editor and Proprietor. May, 1851.

The Charleston Medical Journal and Review. Edited by D. J. Cain, M. D., and F. Peyre Porcher, M. D. May, 1851.

The New York Journal of Medicine and the Collateral Sciences. Edited by S. S. Purple, M. D. May, 1851.

The North Western Medical and Surgical Journal. Edited by Drs. J. Evans, and E. G. Meek. March, 1851.

The North Western Medical Intelligencer. April, May, 1851.

Northern Lancet and Gazette of Legal Medicine. Edited by Horace Nelson, M. D., and F. J. D'Avignon, M. D. April, May, June, 1851.

The American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by Wm. Procter, Jr., Professor of Pharmacy. April, 1851.

The New York Register of Medicine and Pharmacy. Edited by C. D. Griswold, M. D. April, May, June, 1851.

Boston Medical and Surgical Journal. Edited by J. V. C. Smith, M. D. April, May, June, 1851.

The Medical Examiner. Edited by F. G. Smith, M. D., and J. B. Biddle, M. D. April, May, 1851.

The Western Medico-Chirurgical Journal. Edited by J. F. Sanford, M. D., and S. G. Armor, M. D. April, May, 1851.

The Stethoscope and Virginia Medical Gazette. Edited by P. C. Gooch, M. D. April, May, June, 1851.

St. Louis Medical and Surgical Journal. Edited by Drs. Linton, Moore, M'Pheeters, and Johnson. April, June, 1851.

The American Journal of Science and the Arts. Conducted by B. Silliman, B. Silliman, Jr., and Jas. D. Dana, and W. Gibbs. May, 1851.

Transylvania Medical Journal. Edited by E. L. Dudley, M. D., and H. M. Bullitt, M. D. April, June, 1851.

The Ohio Medical and Surgical Journal. Edited by R. L. Howard, M. D. May, 1851.

The Western Journal of Medicine and Surgery. Edited by Dr. L. P. Yandell, and T. S. Bell. April, June.

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CONTENTS

OF THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

NO. XLIII. NEW SERIES.

JULY, 1851.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. Three Cases of Occlusion of the Vagina, accompanied by Retention of the Catamenia, relieved by an Operation. By J. Mason Warren, M. D. (Communicated to the Boston Society for Medical Improvement.) [With a wood-cut.] - - - - - - - - - - 13

II. Tissue, and its Retrograde Metamorphosis. By W. J. Burnett, M. D., of Boston, Mass. - - - - - - - - - - 22

III. Bernard's Recent Discoveries in Physiology. Reported by F. Donaldson, M. D., Baltimore, Md. - - - - - - - - 30

IV. A Statement of two Suits for Malpractice, tried in November and December, 1850, in the Court of Erie County, Pa. By William Maxwell Wood, M. D., Surgeon U. S. Navy. - - - - - - 43

V. Cases of Apoplexy, and the various Forms of Softening of the Brain; with Remarks. By W. Henry Thayer, M. D. (Read to the Boston Society for Medical Observation, October 21st and November 18th, 1850.) 51

VI. Extracts from the Records of the Boston Society for Medical Improvement. By Wm. W. Morland, M. D., Secretary. - - - - - 65

VII. Cases of supposed Phthisis Pulmonalis treated with Cod-liver Oil. By J. W. C. Ely, M. D. (Read before the Rhode Island Medical Society, March 19, 1851, and communicated by the Committee of Publication.) 88

VIII. On the Uses of the Eustachian Valve. By R. Randolph, M. D., of Pennsylvania. - - - - - - - - - - 96

IX. Contributions to Practical Dermatology. By Silas Durkee, M. D. (Read before the Suffolk District Medical Society, Boston.) - - 100

X. On the Topical Application of Chloroform. By John H. Rauch, M. D., of Burlington, Iowa. - - - - - - - - - - 112

XI. Surgical Cases. By R. McSherry, M. D., U. S. N. - - - - 118

REVIEWS.

XII. Operative Surgery. By Frederick C. Skey, F. R. S. With numerous wood-cuts. Philadelphia, Blanchard and Lea, 1851: 8vo. pp. 661. - 121

XIII. Le Climat de l'Italie, sous le rapport Hygiènique et Médicale. Par le Docteur Ed. Carriere. Paris, 1846: pp. 582.—The Climate of Italy in its Hygienic and Medical Relations. By Dr. Ed. Carriere. - - 141

BIBLIOGRAPHICAL NOTICES.

ART. PAGE
XIV. On the Threatenings of Apoplexy and Paralysis; Inorganic Epilepsy; Spinal Syncope; Hidden Seizures; the Resultant Mania; etc. By Marshall Hall, M. D., F. R. S. L. and E., etc. etc. London, 1851: 8vo. pp. 90. 171
XV. Essays and Notes on the Physiology and Diseases of Women, and on Practical Midwifery. By John Roberton, formerly Senior Surgeon in Ordinary to the Manchester and Salford Lying-in Hospital and Dispensary for the Diseases of Women and Children. London, 1851: 8vo. pp. 530. - - - - - - - - - - 179
XVI. Cases of Vesico-Vaginal Fistula, treated by Operation. By Geo. Hayward, M. D. (From "Boston Med. and Surg. Journ.") Boston, 1851: 8vo. pp. 21. - - - - - - - - - - 196
XVII. Practical Remarks on the Treatment of Aneurism by Compression. By Jolliffe Tufnell, M. R. I. A., Surgeon to the City of Dublin Hospital, &c. John Fannin and Co., Dublin, 1851: 8vo. pp. 154. - - 197
XVIII. The Pharmacopœia of the United States of America. By the authority of the National Medical Convention, held at Washington, A. D. 1850. Philadelphia, Lippincott, Grambo and Co. 1851: 8vo. pp. 318. 201

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

FOREIGN INTELLIGENCE.

Anatomy and Physiology.

PAGE
1. On the separate course of Sensation, Volition, and the Involuntary Power from and to the Brain, the Oblong Medulla, and the Spinal Cord. By Joseph Swan. - - - - - - 205
2. New Muscular System discovered in the Mucous Membrane of the Stomach and Intestines. By Ernst Bruecke, Professor Phys. Univ. Vienna. (Communicated by Prof. Van der Byl.) - - 206
3. Experiments on the Pancreatic Fluid of the Calf. By M. J. L. Lassaigne. - - - - - 207
4. Further Experiments on the Pancreatic Juice of the Dog. By M. J. L. Lassaigne. - - - 208
5. Absence of the Sternum in a Child aged Eleven Years. By Dr. Louis Benjamin. - - 209
6. Total Absence of Uterus. By Dr. Ziehl. - - - - - - 209
7. Parovarium of the Female, the Analogue of the Epididymis in the Male. By Prof. Kobelt. - 209

Organic Chemistry.

8. On so-called Chylous Urine. By H. Bence Jones, M. D., &c. - 210
9. Remarks on the Cooking and Preserving of Meat. By Prof. Liebig. - - - - - - 211
10. On the Oxidation of Ammonia in the Human Body, with some Remarks on Nitrification. By H. B. Jones, M. D. - - - 213

Materia Medica and Pharmacy.

11. New Experiments on the Woorara Poison. By MM. Cl. Bernard and Pelouze. - - - 214

12. Preparation of Atropine by means of Chloroform. By M. Rabourdin. - - - - 214

Medical Pathology and Therapeutics, and Practical Medicine.

13. Value of Vaccination. By Dr. Guy. - - - - - - 215

14. Case of Small-Pox recurring a third time after Vaccination, when it proved fatal. By Dr. John Webster. - - - - 218

15. Case of Confluent Small-Pox after a third Vaccination. By Dr. A. P. Stewart. - - - 218

16. Protective Power of Vaccination. - - - - - - - 219

17. Observations on the Urine in Pneumonia. By Dr. Redtenbacher. - - - - - - 224

18. On Exaltation of Hearing in Paralysis of the Facial Nerve. By Prof. Landouzy. - - - 225

19. On the Constitutional Origin of Erysipelas, and its Treatment. By Dr. A. J. Walsh. - - 225

20. On the Treatment of Pruritis of the Genital, Anal, and Axillary Regions. By Dr. Tournie. 226

21. Creasote in Diarrhœa. By Mr. Kesteven. - - - - - - 227

22. Polypus of the Larynx. By Dr. Paule. - - - - - 227

Surgical Pathology and Therapeutics, and Operative Surgery.

23. Diffused Femoral Aneurism—Ligature of the Internal Iliac Artery—Recovery. By Mr. G. Saunders, Assist. Surg. 47th Reg. - - - - - - - 227

24. Femoral Aneurism—Cure in twenty-four hours. By G. R. Darnell, Staff-Surgeon. - - 228

25. Ligature of the External Iliac Artery. By Dr. Charles Halpin. 230

26. Hernia — Operation without opening the Sac. - - - - 231

27. Puncture Wound of the Abdomen—Recovery. By Dr. H. C. Field. - - - - - - 235

28. Tracheotomy in a Child thirteen months old successfully performed for Œdema of Glottis. By T. L. Whistler. - - - 236

29. Extirpation of Neuroma without Injury to the Nerve. - - 238

30. Congenital Obliteration of the Vagina and Mouth of the Uterus. By Dr. Debrou, Surgeon of the Hôtel Dieu of Orleans. - - 238

31. Treatment of Stricture of the Urethra with Gum-elastic Catheters. By R. G. H. Butcher, Esq. 239

32. Congenital Dislocation of the Head of the Radius forwards. By Prof. R. W. Smith. - - 242

33. Dislocation of the Clavicle downwards, beneath the Acromion Process of the Scapula. By R. G. W. Butcher, Esq. - - 244

34. Skey's Tourniquet. - - 245

35. Injury of the Shoulder-Joint. By Dr. Adams. - - - - 246

36. Fragilitas Ossium. By Prof. R. W. Smith. - - - - 248

37. Chloroform in Gonorrhœa. By M. Venot. - - - - - 249

Ophthalmology.

38. Observations on Collyria. By Dr. Arthur Jacob. - - - 249

39. Fungoid Tumour of Orbit—Extirpation—Death. By Mr. J. B. Fife. - - - - - - 253

40. Melanotic Tumour of the Orbit removed. By Mr. J. B. Fife. - 254

Midwifery.

41. On Compression of the Skull of the Infant during Birth, and its Effects. By Dr. Ogier Ward. 254

42. Fatal Case of Inversion of the Uterus, with Attached Placenta, occurring under the management of a midwife immediately after delivery. By Dr. E. Smith. 255

43. On Diarrhœa as a hitherto unnoticed symptom of Menstruation, and on the use of Purgatives at the different Epochs of the Menstrual Function. By Dr. Tilt. - - - - - 257

Medical Jurisprudence and Toxicology.

PAGE

44. Case of Rapid Delivery. By B. W. M'Cready, M. D., Prof. of Mat. Med. and Pharm. in the New York College of Pharmacy. (Communicated to Dr. T. R. Beck.) - - - - - - 259
45. Death from the External Application of Arsenic. By B. W. M'Cready, M. D., Prof. &c., in the New York College of Pharm. (Communicated to Dr. T. R. Beck.) - - - - - - 259
46. Medical Evidence, in favour and at the request of the prisoner. - - - - - - 260
47. Wounding. - - - - - 260
48. Rape. - - - - - - 260
49. Rape. - - - - - - 261
50. Strangulation in Utero. By Dr. Freney. - - - - - 261
51. Two Cases of Poisoning by Arsenic, and Remarkable Recovery under the free Use of Tartarized Antimony. By Mr. Beardsley. - - - - - 262
52. Researches on Gestation. By M. Coste. - - - - - - 265
53. Pathological Appearances in Cases of Strangulation or Hanging, Apoplexy, &c. By Prof. J. H. Bennet. - - - - - 266
54. Fatal Effects from Chloroform. By Dr. Geo. Roe. - - - 271

AMERICAN INTELLIGENCE.

Original Communications.

Wills' Hospital. - - - - - - - - - - - - - - 273

Domestic Summary.

Connection of Amaurosis with Granular Degeneration of the Kidneys and Protrusion of the Eyeball. By Dr. I. Hays. - 274
Cod-liver Oil in Scrofulous Affections and in Consumption. By Dr. I. Hays. - - - - - 276
Temporal Ridges of the African Cranium. By Dr. John Neill. - 278
Two Cases of Popliteal Aneurism successfully treated by Compression. By Dr. Jas. R. Wood. - 278
Case of Amnesia. By Dr. Thomas Hun. - - - - - - 281
American Medical Association. - 282
Pennsylvania State Med. Society. 283
Statistics of the Medical Colleges of the United States for the Session of 1850-51. - - - 283
Graduates of the University of Pennsylvania, April, 1851. - 284

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR JULY 1851.

ART. I.—*Three Cases of Occlusion of the Vagina, accompanied by Retention of the Catamenia, relieved by an Operation.* By J. MASON WARREN, M. D. (Communicated to the Boston Society for Medical Improvement.) With a wood-cut.

THE cases of occlusion of the vagina, successfully relieved by an operation, are rare, and the mode to be pursued under the different circumstances in which this occurrence presents itself has not been very fully pointed out by writers on the subject. In the first of the following cases, some embarrassment was therefore felt as to the proper course to be adopted.

The principal authorities for reference were Boyer, Boivin, Amussat, and the case of Professor Mussey. The former of these details two or three very interesting cases as showing the anatomical peculiarities which are likely to exist, but advises against the operation in nearly these words: "An opening into the bladder and rectum is not the only accident to be dreaded in this operation. Inflammation of the womb and of the neighbouring parts has to my certain knowledge caused the death of two females, on whom it had been performed." Madame Boivin, after observing that in these cases of atresia the prognosis is worse, the diagnosis more difficult, the treatment more uncertain, and the operations more doubtful and delicate than in cases of simple closure, recounts the three instances recorded by Boyer, in one of which the celebrated Dubois was called in consultation. The result of these cases was, however, fatal, as also that of another, in which an eminent surgeon unfolded, as it were, the urethro-rectal septum, punctured the tumour, and thus gave issue to the retained fluid, for the first few days with the prospect of success. The case of Amussat is very instructive, and detailed at considerable length in the number of this Journal for Feb. 1837. In many respects it corresponds with

one of our own cases hereafter given, and was operated upon with perfect success. The case of Professor Mussey is also detailed in Vol. XXI. of the same Journal; and in the number for July, 1850, another, with the appearances upon a post-mortem examination, is described by Dr. J. B. S. Jackson. "In regard to an operation," he says, "which seemed to have been so imperatively required, a consultation was held with two or three professed surgeons when the occlusion was discovered, but the opinions were against it."

Some writers on surgery, Chelius, for instance, have given general directions for the management of closure of the vagina, whether from accident or congenital malformation. But sufficient detail is wanting as to the diagnosis in retention of the menstrual secretion, and the mode of giving an external outlet when the anatomical relations of the parts have been altered by inflammation or extensive gangrene. These considerations have led me to offer the following cases, with the hope that they may be of service to any surgeon who should meet with similar instances in the course of his practice. In the first two, it will be seen that the occlusion was the result of parturition; in the last it was congenital.

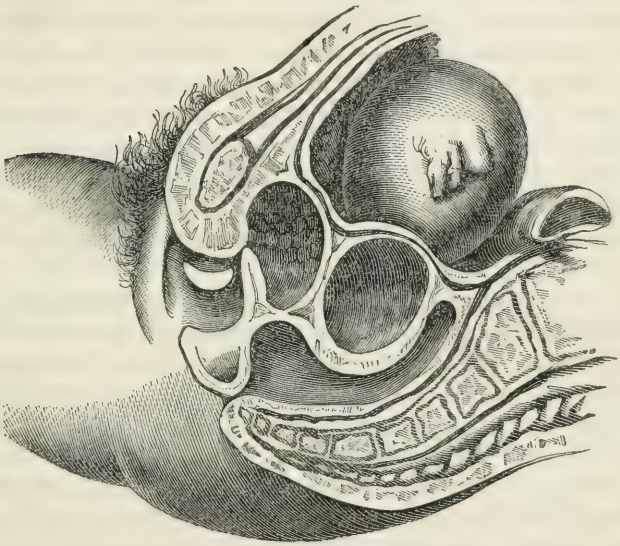
Case I.—This patient was a married woman, twenty years of age. A year before, she had been delivered, by means of instruments, of a dead child, after a labour of four days; very severe inflammation followed, attended with sloughing of a portion of the vesico-vaginal septum, so that the remains of the bladder, falling down, became adherent to the posterior wall of the vagina, and obliterated the passage. The urethra also in part sloughed, the water escaping at a valvular opening between the remains of the neck of the bladder and the os pubis.

The menstrual secretion had been retained from the period of her confinement; at first she suffered at the regular periodical returns of the catamenia from pain and distension of the abdomen, with a sense of bearing down in the rectum. Latterly, the pain has become almost constant, at times amounting to a feeling as if the abdomen would give way, and so acute as only to be relieved by the persistence in large doses of narcotic substances. From these causes she was almost bedridden, and reduced to the lowest degree of emaciation.

The constant dribbling of urine had rendered the orifice of the vagina so extremely sensitive that it was found quite impracticable to make any examination until the patient had been placed under the influence of ether. The cul-de-sac left at the commencement of the vagina was just sufficient to admit the end of the forefinger. From its upper part the urine escaped through a valvular opening, so disposed that a probe could not be made to enter the bladder. On passing the forefinger into the rectum, a hard and slightly elastic tumour could be felt about two inches from the external orifice, pressing backwards and partially obstructing the bowel. The other hand being placed on the abdomen distinguished a large globular mass rising above the brim of the

pelvis, pressure on which communicated a distinct impulse to the finger in the rectum.

The above examination led to the conclusion that the tumour felt in the abdomen and rectum was the uterus and upper part of the vagina distended by the menstrual fluid. The question next arose how was this tumour to be attacked; the most feasible plan seemed to be to puncture it by the rectum. The impossibility of keeping a passage open in this direction was an objection to this course as affording only a temporary relief. An attempt to dissect the bladder from the vagina, supposing its posterior wall destroyed, and the relation of these organs to be as in the accompanying illustration by Dr. Dalton, would almost inevitably create an opening into its cavity.



In consultation with Dr. Morrill Wyman, the physician of the patient, the plan which was afterwards put in execution was agreed upon, and in the operation, which was performed April 11th, 1850, I was assisted by Dr. Wyman, Dr. S. D. Townsend, and Dr. C. G. Adams.

The patient being brought as completely as possible under the anæsthetic influence of sulphuric ether, was placed on the edge of the bed, with the limbs supported, as in the operation for lithotomy, and the labia held apart by silver hooks. The forefinger being now placed in the rectum to serve as a guide, a transverse incision was made across the lower part of the vagina through its parietes, so as to expose the cellular membrane lying between it and the rectum. This dissection, passing under that portion of the vagina which served as a fundus to the bladder, was continued upwards between these organs for two or three inches until the distended cul-de-sac could be distinctly felt.

A very large trocar and canula was now plunged into the tumour, and when withdrawn a quantity of thick tarry-looking fluid began very slowly to flow through the tube; about a pint was allowed to escape, when the canula was withdrawn, being too short to be left with safety, and a female catheter introduced in its place.

In the afternoon of the day of the operation, the patient was comfortable, and greatly relieved from the previous distressing sense of distension. At intervals, however, there were severe contractile pains in the uterus like those attending the first stages of parturition, and by them the catamenial fluid was forcibly expelled. Spirituous applications were made to the back, and an opiate administered, by which her sufferings were temporarily relieved.

On the following day I learned that she had passed an uneasy night, the pains continuing at intervals, causing a free evacuation of fluid. Her mother estimated that at least two quarts had passed through the instrument, with the effect of greatly diminishing the tension of the abdomen. Towards evening she had an access of pain and fever, with some obstruction to the discharge; the bowels being constipated, she was ordered a cathartic of castor oil. On the thirteenth, the report was that the medicine had operated with much relief, and the uterus had again resumed its action. This organ could now be felt above the pubes, somewhat tender on pressure, and contracted into a small, well-defined tumour.

For about a week she improved steadily, the discharge continuing at intervals. It was with the utmost difficulty that any instrument could be retained in the opening, and when displaced, as it was once or twice by her restlessness, the aperture was found to have so contracted as to render its replacement almost impracticable; especially as her complaints were very great from the excessive sensibility of the external organs.

After the lapse of this period, she was attacked with a catarrhal affection, during which, from some exposure or error in diet, she was suddenly seized with violent pains in the abdomen, meteorism, great sensibility on pressure, with other symptoms denoting peritoneal inflammation. These were gradually relieved by treatment, the patient barely escaping with her life. During this attack the canula had necessarily been removed, and every measure for maintaining the opening abandoned. It was therefore a subject of interesting speculation whether, at the next catamenial period, the aperture would be pervious, and also if the uterus after so great distension would resume its normal functions. To the great satisfaction both of the patient and myself, the menstrual secretion came on naturally about four weeks from the date of the operation, and gained an exit without difficulty.

The subsequent improvement was gradual, and only interrupted in the course of the summer by an attack of varioloid, which disease prevailed in the house.

I have recently heard from this lady through her mother, who informs me that from a mere skeleton her daughter has become quite fleshy; she has re-

gained her health and strength so as to be able to use exercise on horseback, and that the menstrual secretion is natural at the regular periods.

Case II.—On February 4th, 1850, I was applied to by Mrs. B., aged thirty, in consequence of the suffering produced by the retention of the menstrual fluid from an occlusion of the vagina subsequent to parturition.

In the August previous, she had been delivered of her first child after a labour of four days, during a portion of which the head of the infant remained in the pelvis. Instruments were used but ineffectually, and the delivery was ultimately accomplished without them; very severe inflammatory symptoms attended, while a purulent discharge followed, and finally it was discovered that the vagina had become entirely obliterated. From that time the return of every catamenial period has been marked by the most distressing pains in the back and abdomen, lasting three or four days, and progressively increasing in violence; this was accompanied with some constitutional disturbance, and these repeated attacks have gradually impaired her health.

An examination showed that the vagina was entirely closed, and hardly a perceptible cicatrix could be detected to indicate the line of union. At the lower part of the vulva an orifice was discovered large enough to admit a probe, which on being introduced could be passed up a distance of three inches in the direction of the uterus, and was distinctly perceived through the recto-vaginal parietes by the finger introduced into the rectum. At this period no abdominal or rectal tumor was ascertained to exist. It was determined to etherize her, and attempt to restore the vaginal passage.

After having brought the patient fully under the influence of the anæsthetic agent, a bougie was passed into the fistulous opening. This was followed by the finger, and by proceeding carefully in this way, by distending and separating the adherent parts, a free opening was made of about three and a half or four inches. At this point a regular organized septum precluded any advance, unless by the assistance of cutting instruments. A bit of sponge was therefore introduced and directed to be kept in situ during the night.

On the day following, the sponge was removed and replaced by another piece. This course was continued for a week, when no tumour being discovered in the rectum to indicate the situation of the distended uterus, and there being no trace of the os uteri in the vagina, it was determined to suspend any further proceedings, resting contented with what had been gained, and enjoining upon her to use all necessary means for keeping the passage open until the distension caused by the menstrual secretion should be sufficient to serve as a guide to the knife.

A few months after, having rigorously followed up the above directions, she visited me a second time, suffering in the same way as before, and urgently demanding relief. An examination elicited no change in the situation of the parts. As the pain was very distressing, however, I consented to make an incision at the upper part of the vagina, with the hope of throwing some light

upon the direction in which the enlargement of the uterus was taking place. This was done, and the dissection carried as far as was thought safe, but with no good result.

On the 3d of May, I again saw her; she had for four days been in extreme pain. The vagina, so far as it had been dilated, I found to be of its natural dimensions. The finger introduced into the rectum at once discovered, about two inches from the anus, a hard tumour, such as might be presented by the enlarged prostate in the male, and with as little sensation of fluctuation. She informed me that for the previous twenty-four hours there had been a bloody discharge from the vagina, and traces of this secretion were perceived when that passage was examined, apparently coming from the mucous membrane. Not the slightest indication of any tumour could be found in this direction, even when the abdomen was strongly pressed upon.

Although the rectal tumour was free from fluctuation, I had no question from my previous experience but that it proceeded from an enlargement by distension with fluid of the upper part of the vagina or uterus, and therefore proposed an operation, which was readily acceded to.

On the 3d of July, the operation was performed, with the assistance of Dr. Channing, the patient being first etherized. The upper and back part of the vagina was cut freely through with a round-bladed bistoury, and very soon with a slight dissection the tumour which had been felt by the rectum presented itself, but much softer and more elastic than when examined through the intestinal wall. A large trocar was now plunged into it in a direction obliquely backward, in order to avoid wounding the os uteri, in case that organ projected into the vagina. A free discharge of the black tarry substance described in the last case at once took place.

About half a pint of fluid having escaped, the canula was withdrawn, and the finger introduced into the opening, which was enlarged in either direction with the probe-pointed bistoury.

On exploring the cavity, no distinct projection answering to the os uteri could be discovered. The whole interior both of the uterus and vagina seemed to form but a single receptacle, a little contracted at one point, like the hour-glass contraction of the uterus, and this apparently answering to the situation of the os tincæ. The mucous membrane appeared much swollen and traversed by large vessels, which stood out in bold relief. A long narrow bit of sponge was passed into the vagina, half of it being allowed to remain within and half without the opening just made. The patient declared herself at once relieved from all her distressing symptoms.

From the difficulty of maintaining the new opening, it was found necessary a few days after the operation to introduce a sponge tent, which was removed daily and replaced by a larger piece. At the end of a week, the patient having exposed herself by going out of doors and washing her person with cold water, immediately after the sponge had been removed, was seized with severe pains in the abdomen and in the lower part of the back, tympanites and all the

symptoms denoting inflammation. The treatment consisted in the application of leeches, the administration of purgatives, etc. In three or four days the pain and tenderness gradually concentrated at the lower and left side of the abdomen, where a large hard tumour could be perceived through the parietes. These symptoms were suddenly relieved by the discharge of a quantity of pus from the vagina. The tumour in the abdomen now gradually subsided. The intestinal canal remained for a length of time quite irritable, diarrhœa being produced whenever she took solid food.

She left town on July 31st, quite weak, but recovered.

She was advised to have a small rectum bougie passed into the opening in the vagina daily, as the disposition to contraction was still great, and it was thought unsafe, through fear of exciting a fresh attack of inflammation, to maintain any substance constantly in the aperture.

Case III.—*Congenital Occlusion.*—Miss S., seventeen years old, has been suffering for two years with a sense of distension and weight in the lower part of the abdomen and back, attended by a forcible pressure in the vagina, as if for the purpose of expelling some foreign substance. She has also been greatly annoyed with a frequent desire to micturate, and of late has passed water as often as every twenty minutes through the day, but with diminished frequency at night. She suffers much severe pain at the extremity of the urethra, which is aggravated by the passage of the water. She has never menstruated.

Her physician, a person of much intelligence, when applied to at once suspected the cause, and on making an examination discovered that the vagina was completely imperforate. I saw her on the next day and found the following appearances. On separating the external labia no traces of the vagina were visible. At the central part of the fossa, usually occupied by this outlet, the meatus urinarius was perceived surrounded by small vegetations, which on the slightest touch elicited the most violent resistance and cries from the patient. A probe being introduced into the urethra, its farther progress was resisted at the distance of an inch from the orifice; but finally, by passing it upwards in almost a vertical direction, it entered the bladder, which was contracted to the smallest dimensions.

The finger was now introduced into the rectum, and at once detected a hard tumour two inches from the anus, pressing backwards against the spine. It seemed quite solid, and without the slightest indications of elasticity. On passing the hand over the abdomen at its lower part, a hard projection was felt in the centre just above the pubis, having a prolongation about four inches in length, extending into the right iliac region. Pressure on either of these swellings caused a movement of the tumour in the rectum, and was attended with much suffering.

No doubt remained in my mind that these tumours were caused by a retention of the menstrual fluid in the uterus and upper part of the vagina, and also the Fallopian tubes, as in the case already referred to, recorded by Dr. J.

B. S. Jackson, in the *American Journal of the Medical Sciences*, July, 1850. An operation was therefore at once advised, which was performed on the following day, with the assistance of her physician, Dr. Tyler, Dr. Channing, and Dr. Storer.

The patient being fully etherized with chloric ether, an incision was made transversely across the mucous membrane of the lower part of the vagina. This disclosed muscular fibres, which being carefully divided through the aperture thus made, a delicate membrane of a dark colour protruded. It was suggested by one of the gentlemen present that this might possibly be the peritoneum, which in a case of malformation and non-existence of the vagina might take an abnormal direction. For the purpose of testing this, I attempted to separate it from the surrounding textures, knowing the loose character of the cellular tissue which attaches the peritoneum to the neighbouring organs and the pelvis. This was at once found to be impracticable, and on a renewal of the effort the resisting part yielded, and the finger passed through into what appeared at first to be the abdominal cavity, so well defined was the anatomy of the walls of the pelvis. The absence of intestines, and the appearance of a small quantity of dark-coloured fluid by the side of the finger, soon made it evident that the vagina had been opened. The size of the cavity occupying the entire pelvis, and the complete absence of os uteri or other boundary, between the uterus and vagina, was on examination sufficiently evident to all present.

By the aid of slight pressure on the abdomen, about half a pint of thick, tenacious fluid escaped. As the uterus did not at once take on contractions, no further efforts were made to evacuate the fluid, but a bit of sponge was introduced into the opening to prevent the parietes from adhering. The vegetations at the orifice of the urethra were now removed by the scissors, and the base of the tumours cauterized with nitrate of silver. To show the extreme sensibility of these tumours, it may be observed that as soon as they were interfered with the patient, although well etherized and perfectly passive through all the previous operation, immediately drew back as if in extreme pain.

At 7 P. M. she was in good spirits, and expressed herself entirely relieved by the operation. The effects of the ether had passed off, notwithstanding she had been kept for three-quarters of an hour fully under its influence. I warned her as to the great danger she incurred from any irregularity in diet or exposure to cold, as I found her disposed to leave her bed, and she was demanding food.

On the 14th September, the day following the operation, she was reported to have passed a good night. The sponge was removed from the vagina, and a free discharge of the peculiar fluid took place; after a few hours it was again introduced. No urine had been passed since the operation; during the succeeding night, however, a copious evacuation of the bladder took place.

On the 17th, she still continued to improve, and the tumour of the abdomen to diminish. The finger passed into the vagina could distinguish the os

uteri, as it were, gradually forming itself. It was about the size of a tumbler, with thick edges, and covered with dilated blood-vessels. The sponge tent when withdrawn was very offensive.

As she was urgent to go among her friends, I agreed to-day, the 20th, that she should do so; being conveyed to the rail-road in a carriage with care, and kept in a recumbent position until she arrived at the point of her destination. She was then to remain a few weeks longer in bed, or on a sofa, without attempting to use any exercise. At the period of leaving town, she was quite well. The urine was passed naturally and without pain, the sensitive tumours of the urethra having been destroyed by the operation. The discharge from the vagina had partially ceased or had been replaced by a serous exudation. Her appetite and the state of her digestive organs were natural.

On the 4th of October, the physician of this patient wrote to me as follows: "A case could not proceed more satisfactorily or more rapidly than that of Miss S. She has not had a bad or even a troublesome symptom. I could not conveniently use the dilater which you sent, but substituted a glass female syringe, which she was able to wear during the whole day, the discharge passing off through the calibre. She was able to use without pain one of seven-eighths of an inch in diameter. The discharge has ceased, and she yesterday went to her home."

In the first of the cases which have been given, the only apparently feasible way of arriving at the distended uterus was adopted, viz: that of penetrating to it by a dissection carried up between the rectum and vagina. The proceeding eventuated more satisfactorily than could have been expected. The greatest obstacle to a rapid recovery was the almost impossibility of maintaining the new opening, on account of the great disposition to contraction, and this was found to be true in all the cases. What appeared to be a large free opening, with no restriction on any side but the bones of the pelvis, in the course of a few days was contracted to a firm unyielding ring, into which it was with difficulty that a small bougie could be introduced. The sponge tent, when it could be borne, at once dilated the aperture again to a size as great as could be wished; but the extreme sensitiveness of the parts prohibited, in the case under consideration, a resort to this powerful agent. In fact, it was finally found necessary, on account of the great resistance made by the patient, to desist entirely from all applications, and leave the course of it to nature. The subsequent month, the catamenia appeared slightly, and there has as yet, so far as I know, been no obstruction to it.

In the second case, the obliteration of the vagina, which was closed throughout nearly its whole extent from the upper part to the vulva, was also caused by laborious parturition.

It may serve as an example to show the necessity of making inquiries, after a severe case of labour, as to the degree of local inflammation, and of taking measures for preventing if possible such adhesion as occurred in the present

instance, a matter of difficulty and delicacy; but as so much is at stake, these considerations must necessarily give way to a correct appreciation of the danger which would ensue from neglecting an examination, when the discharge from the vagina was so offensive as to suggest the possibility of gangrene and subsequent adhesive inflammation.

It may not be useless to call attention to the great resistance, and in two of the cases entire want of fluctuation, which existed in the distended sac formed by the uterus and vagina, as felt through the rectum, and which might lead the surgeon to doubt the accuracy of his diagnosis, did not other marks assist in forming it.

Boston, *Feb.*, 1851.

ART. II.—*Tissue, and its Retrograde Metamorphosis.*—By W. J. BURNETT, M. D., of Boston, Mass.

IF we commence at the first appearance of an individual organization, the ovum, we shall find that in its primitive condition, when examined by the microscope, it will appear to be composed of granules, and when examined chemically, that these same granules are only oil and albumen combined. These so-called granules are not properly such, for they are not solid particles, but utricles, or little albuminous sacs filled with oil.

From these primordial utricles are developed the vitelline cells, and the germinative vesicle and its contents, which, after being vitalized by impregnation, undergo a series of metamorphotic changes, ending in the production of the individual being, with its various tissues.

Two facts are here to be recognized; first, that oil and albumen, thus vitally combined, form the basis of all animal tissues; and, second, that these utricles are the parents as it were of all organized forms. Moreover, they constitute the first material expression of the union of formative power with matter; and, although identical as to their physical characteristics, according to the best microscopic evidence, yet they contain those heterogeneous forces which have their complete expression in the many and different tissues in which their existence is lost and ends.

Those utricles, for instance, which end in the formation of muscle, and cannot, as such, be distinguished from those producing glandular or any other tissue, each preserve faithfully to the end their distinctions, embodying in their minute forms the ideas, as it were, of the future form and conditions of life.

Reverting then to our simplest idea of tissue, it is this elementary form, an utricle, vitalized albumen combined with animal oil.

Now, in the elimination of tissue in its compound form, that is, capable of

a function, these utricles serve either a direct or an indirect agency. They enter directly into and form the lower fibrillated tissues, or they serve as a kind of basement for some of the higher. Then, again, indirectly, they pass on to their highest condition of cells, which form the groundwork of all tissue, exercising true function.*

Recent, and some of the best microscopical studies in histogeny, show thus the value of these primitive forms, and also that, if we except the secerning processes, there are no powers possessed by adult cells which are not equally possessed by these utricles. In the nutrition of tissue, after it has been formed, as well as in its reproduction, when forming, they still preserve their important agency; for, in the effused plasma of the blood, their number is expressive of the nutritive power, and they form, moreover, the cytoblastematous material of all the cells evolved in the process.

I have thus imperfectly sketched the relations of these elementary forms to tissue, and its formation, as preliminary to the consideration, and for the better elucidation of another process of tissue of a quite dissimilar character.

This is the retrocession of an adult tissue back to its elementary condition, a change which perhaps may be well expressed by the terms *retrograde metamorphosis.*

When a compound tissue has attained its perfect condition—and its function, beyond this (if it has any) is not required, and therefore its nutrition is nearly suspended—there is with it a constant tendency to fall back to its basement composition, and where it is complicated in structure, the different phases of its growth are there seen in an inverse manner. There being no proper death of the part, there is a disintegration, an unfolding, without a decomposition. It is a result, also, which must be carefully distinguished from real atrophy—for in this last the structure is not destroyed, but only the liquids diminished, and a simple change of nutrition in excess, being sufficient to obtain its original power and fulness, which is not the case in tissues whose structure is lost by a retrograde metamorphosis, in which, I scarcely need add, the result is either a granular, blastema-like product, or its near approach.

Now, in every well-formed normal tissue there is a power resident, which we may call a continuation of the germ power, or we may consider it as one of the characteristics of organized matter, but which, at any rate, finds its expression in the repetition constantly of that tissue, whatever it may be, or however situated. Where an injury is sustained, or a part lost, it is from the agency of this power that an attempt is made to replace the lost portion, which, in fact, is perfectly successful in the lower forms of life, only where the germ power is abundant, and where it is almost impossible to produce a nutrition, which differs from the normal type. On the other hand, with animals occupying a higher position in the scale, the nutrition of tissue seems to exist under

* See a paper "On utricles as the primordial forms of all animal tissues."—*Transact. Amer. Assoc. for the advancement of Science*, Aug. 1850.

a more complicated condition; the germ power is in its *minimum*, and where a part is lost, it is rarely replaced exactly.

In retrograde metamorphosis this power seems to have died out, and there is not even a feeble attempt to keep up the integrity of the tissue; yet a kind of nutrition exists, the vitality is maintained and decomposition prevented. And, exactly as with animals, when a true species is elevated by cultivation above its natural characteristics, these last may enter into its constitution and exist in its germ power, so that they can be perpetuated by hereditary transmission to quite an extent; yet where this power of cultivation ceases, the animal invariably reverts to its normal type. So in retrograde metamorphosis, when the germ power which has urged on these primitive particles to their different ends ceases, there is a tendency for all to recede to their basement, embryonic condition. Of course this process never occurs in a normal condition of tissue, and rarely in the higher compound tissues even in disease, except in the decline of life.

Its relation with disease and diseased products particularly deserve our attention, as here it has a practical as well as a physiological import.

We will first look to the adventitious products; tissues far beneath the normal type and where, therefore, it is best expressed.

With *pus*, for instance—the highest attainable product of inflammation, and which is a corpuscle with several granules—when it has reached this stage, it can pass no farther; and being a non-organizable form—if not there excreted or if pent up in a cavity, it immediately recedes to that granular, utricular condition which marked its formation. And here let me add, that whatever may be argued as to the difference of nature between the cell proper and its nucleus or nuclei—based upon an apparent difference of the effect acids may have upon each—it is pretty certain that when these distinctions are scarcely or not at all evident, their differences, if they did exist, are reconciled by the metamorphosis. The chemical analysis of pus, and especially when from an abscess unconnected with mucous membranes, as given by Von Bibra,* show that water, extractive matter, fat and albumen form almost the entire residue.

In carcinoma these changes are still more apparent, for they are marked by a quite active abnormal nutrition. In encephaloid of the breast, for instance, it is well known to those who are accustomed to such microscopic examinations how rich in cells it is when in progress, and that after having reached its adult age, it undergoes what is called a "fatty degeneration," that is, great quantities of fat are found in both a free and combined condition, while the cells have in a corresponding manner decreased, in other words have undergone that retrograde metamorphosis; a result equally borne out by chemical analysis. After this has taken place the watery portion is disengaged, and may there be absorbed, giving rise to those caverns of various sizes, lined with fat and albumen, which are so common in large and old cancers of the

* Quoted in Simon's Chemistry of Man, vol. ii. p. 91.

breast. In these instances the abundance of the granules shows the richness of this material, and the existence of free uncombined fat shows its excess over the albumen.

Retrograde metamorphosis here constitutes an attempt towards the cure, or a removal of the adventitious matter; for it is comparatively harmless when it has lost its corpuscular condition, and it is thus also prepared for its absorption, as testified by the caverns we find, and which, undoubtedly, might be complete, did the neighbouring vessels preserve their normal power.

In that other important morbid product, tubercle, the retrograde metamorphosis is but another name for its softening, and equally marks its adult age and decay of life; originally composed always of corpuscles, which, whether they be degraded exudation cells or corpuscles *sui generis*, is not by any means a material point in pathology, for we can get no nearer to their real nature. Their short and imperfect life is signified by their rapid tendency to this change, ending in a granular mass, enclosing a few rude rough corpuscles, that have withstood the process.

Here, as in the same with carcinoma, this forms the curative movement. Reduced to water, oil, and albumen, the first being absorbed, the last two are left in such a condition that, if shut off from external influence, they may either remain harmless a long time, or are liable to be hesitatingly taken up by the general nutritive process, a radical cure being then effected; there being no reason why tuberculous matter thus reduced should not be absorbed any more than there is of the common effused granular matter of inflammation. And here I may say that the most trustworthy pathological inquirers show the same result, tuberculous matter entirely disappearing, yet leaving behind it unmistakeable footprints of its former existence.

Now with this change, thus occurring in the three most prominent morbid products of the economy, unless we regard it as a real metamorphosis of material, it is quite difficult to account for the results produced; for we have a cellular tissue, the cells with their involucral albuminous membrane, all reduced to the condition of minute particles, which are not irregular, as from a pulverization of an inorganic body, but are real utricles.

When this change occurs with the higher tissues of a compound and more perfect organization, it is to a much less extent, because their conditions of growth are different, and their union on a higher and more permanent form of existence much stronger, for it involves a definite and fixed function.

But, although thus feebly expressed, it has at least an equal interest in pathology since it exists, with important tissues; and, in the most prominent cases, infringes directly upon the performance of some of the higher functions of life.

The muscular is pre-eminently one of the higher tissues in which it occurs, and to this we will first direct the attention. The muscular tissue is very complicated, quite as much so, perhaps, as any in the body; when therefore it undergoes the retrograde metamorphosis, the changes are more chronic, and

the result less uniform than with simple cellular structures. But, before instancing this, it may be proper that the mode of its formation should be briefly alluded to. Although muscular structure has long been made out, with a tolerable uniformity of result, among microscopists, yet much obscurity has always existed as to its mode of formation; and this has been rendered all the more obscure by attempts to deduce the formula of its primitive growth, by picking apart its adult structure. However, from the carefully made observations of Valentine* and Reichert,† tolerable notions were entertained, but which were very far from being satisfactory to all.

To Lebert,‡ of a later day, belongs the credit of affording us definite and well-grounded opinions on this subject; which, as it now appears, is placed in as clear a view as any other point in histogeny. It is briefly as follows: In those parts where muscle is to be developed, large cells first appear; these become elongated, and arrange themselves in a linear seris, thus forming tubes, which constitute the first appearance of muscular *fibres*. These tubes are filled with granules; and the completion of the formation is occupied by the arrangement, in these fibre-tubes, of those granules in a regular manner, giving rise to what are called *primitive fibrillæ*, by microscopical anatomists.

Although I have not followed in the footsteps of Lebert to satisfy my mind practically of the correctness of these results, yet they appear to me to be true from what I have seen of the retrograde metamorphosis of this tissue, for there the gradual unfolding of the structure gives an opportunity to get glimpses of its early growth and formation. As might be supposed, this change is here the inverse of the formative process. First, the granules lose their regular arrangement, and run together, the striated character fading away; then the fibre cells at their points of junction become visible, and you perceive a jointed tube, the contents of which is a granular, oleo-albuminous mass.

This constitutes one of the forms of what is called by pathologists "fatty degeneration of muscle." It may occur under different general relations, which may here be well noticed. These are, first, where it infringes directly upon the life of the individual; and, second, where it exercises of itself no particular detriment. The first is when it is found in the heart; the second when met with in the muscles of the extremities. The last will be noticed first.

I have had the good fortune to meet with several instances in this category, each permitting a careful microscopic examination of the parts. In all these (six, I think) the cause could be traced either to a total disuse of the part, or to a previously existing inflammation, leaving the tissue with a poor and imperfect nutrition, or, lastly, to a starvation of the part from local arterial obstruction.

The following notes of a case taken from my memorandum book will per-

* Muller's Archiv. 1840. p. 198.

† Entwickelungsleben, p. 241.

‡ Annal. des Sc. Nat. 1849.

haps sufficiently show the conditions of this change as occurring in the muscular system generally, and after an inflammatory process.

April 1850. Patient was of middle age. Two years since, he perceived, without known cause, a simple enlargement or "bunch" about the left elbow-joint. It came on without noticeable pain, and continued as a simple tumour for several months. The symptoms of a more acute inflammation appeared; it opened and discharged "scrofulous pus," then closed, then opened again, and so on, like an ordinary scrofulous abscess; leaving ultimately a considerably hard and unyielding tumour just below the joint. The arm was amputated; and a subsequent examination of the tumour exhibited the following appearances. An incised surface showed it to consist of a pale, reddish, fleshy mass, in which were interspersed white bands, these last, in some places, being the entire structure.

Under the microscope, the tough white portions were found to be made up of strong fibres running in the direction of the former muscular fibres; these contained broken nuclei, the remnants of their former cell structure, also quite a quantity of fat in the shape of granules and globules. The pale red portions presented a somewhat different aspect. Floating in the field of the microscope were cylindrical-shaped bodies, the transverse diameter of which was that of normal muscular fibre, and their length was about twice their width. They appeared to be not ragged bits but parts of a perfect whole. The usual muscular striæ were faintly seen in some of them, and occasionally there was perceived a long-jointed fibre evidently made up of these peculiar bodies. Much fat in the form of granules or utricles everywhere was present; in fact, what was not fibre was fat.

To sum up the whole, there was muscular tissue, from a previous damage done to its nutrition, from inflammation, retrograding to its primitive cell-type of structure, the latter becoming more and more apparent as the process took place.*

But this change occurring in the muscular tissue of the heart, has a corresponding import, as the life of the individual is compromised. It has received much attention of late, and especially since the microscope has demonstrated the true nature of the change. It constitutes one form of what is called by authors fatty degeneration of this organ. Rokitansky† was the first, as I am aware, to signify this change, and to distinguish it from others. It is a result which must be separated from that of mere fatty accumulation on and about the organ and between its fibres, which, like the same accumulation on and in the kidneys, being only an expression of general obesity, seldom gives rise to serious results. In this last also the fat exists in the shape of fat-cells, the

* Some time after, upon comparing the sketch I made at the time of the microscopical appearances with the figures of muscle developments given by Lebert, I was struck with their similarity.

† Handbuch der pathologishen Anatomie, Band. i. p. 287.

origin of which can be traced to the surface, for the fatty infiltration (not degeneration) extends from without inwards.

When, on the other hand, these real metamorphotic changes occur, they are traceable, as far as I am aware, to some serious perversion or suspension of the nutrition of the organ, and ossification or a partial obstruction of the coronary arteries is often a concomitant.

The mode of change is here the same as that of other muscles, as we have just described: the striated structure partially disappears, and the fibre appears filled with oleo-albuminous particles, and often considerable free fat; the tonicity of the tissue is lost, and, where these changes are extensive, there occur many sequelæ, the least of which is a feebleness of the heart's action; sudden rupture and death being the most serious. It is enough for me here thus to allude to this change when occurring in this organ; for it has sufficient importance and interest for an article by itself. It is one of those many instances in pathological anatomy, which I am happy to say are constantly increasing, in which the microscope has been of such eminent service, for the nature of this fatty condition of the organ could not be known without it, as it belongs, let me again say, to a quite different class of pathological changes from that of simple fatty accumulation.*

Constant practice in microscopical pathology is all the while convincing me of the frequency of this change in tissues, and that it may serve as the basis of many accidents in medicine. In closing this imperfect sketch of its history, I will speak briefly of it as taking place in other parts, where, although not the less equivocal, it has not been quite as much studied by the microscope.

Changes, referable I think to this process, may be observed in the muscular tissue of the small blood vessels of the brain, leading to what is called their fatty degeneration. This is of importance as bearing upon the subject of apoplexy. Mr. Paget† is the first that I am aware to bring the microscope to bear upon it. He has regarded the change as a "fatty degeneration," and I know too well his accuracy in microscopy to doubt its being so, did not his own language imply that it really comes under the same head as what I have been describing as a retrograde metamorphosis. He says: "When the fatty degeneration has made much progress, changes in the structure, and not rarely changes in the shape also of the affected blood-vessels, may be observed. The chief change of structure appears to consist in a gradual wasting of the more developed proper structures of the vessels." "They waste and totally disappear."

Mr. Paget describes carefully the appearance of the oil globules as they gradually and apparently invade the structure; he mentions also the appearance of many granules, which without doubt are the oil particles invested

* The reader is referred to a very interesting article on fatty disease of the heart, in the last number of the *Medico-Chirurgical Transact.*, by Dr. Quain. When recently in London, I had the pleasure of seeing in Dr. Q.'s office many of the specimens which are the basis of the above referred to article.

† London Med. Gaz., Feb. 1850, p. 229.

with albumen; all traceable, as far as my own observation goes, to an impaired nutrition of the vessels, their loss of vitality, and their corresponding receding metamorphosis. In all these cases the fault is with the *vasa vasorum*, their function being feebly performed.

In blood-vessels of other parts of the body, these same changes occur, and are of not the less pathological import, but space will not allow me to advert to them now.

Within a few years, and since the microscope has been made to bear upon most points of primitive pathology, the presence of fat, either in a free or combined form, in the different organs, has excited much attention, and especially in those cases where it does not, as far as we now know, exist in the normal state. Such, for instance, is the presence of fat in diseased kidneys, rendered all the more prominent by serving as the basis of a theory as to the nature of Bright's disease. Such was the view put forth in 1845 by Dr. Geo. Johnson,* and which he has sought to establish by a series of papers since published.

I cannot here enter into the details upon this point which it deserves, but I hope before long to put together my microscopical data on this subject. It is sufficient now for me to remark that I cannot agree with Dr. Johnson that Bright's disease is simply a fatty degeneration of the kidney; but the microscopical appearances I have sometimes observed I have thought traceable to this same retrograde metamorphosis existing in an imperfect degree, fat and granules being the result. Bright's disease, I may here remark, appears to me to be always, primitively, an acute or a subacute nephritis, and the conditions in which the primary attack may leave the organ are as various as the post-mortem appearances found on dissection. Except in children and young persons,† the nutrition rarely or never gets back to its normal type, but exists in an imperfect state; and from this bad nourishment, the retrograde metamorphosis sometimes occurs, the normal structure then disappearing partially, leaving in its place a low fibrillated tissue, and many oleo-albuminous particles.

The appearance of an unusual amount of fat may, in some cases, I think, be due to this cause, for it may be both in and out of the epithelial cells. I can here only thus speak of this subject, leaving until a future time its many important relations.

In conclusion, let me notice this change as occurring in one more tissue, the brain. Ramollissement or softening of this organ is now tolerably well understood, and recent studies in this direction cannot fail to make it more so.‡

* "On the Pathology of Bright's Disease," Med.-Chir. Trans., vol. xxix.; also "On Inflammatory Diseases of the Kidney," vol. xii., new series.

† For cases of nephritis with concomitant albuminuria, yet passing away entirely, see "The Pathology of the Kidney in Scarlatina," by James Miller, M.D. London, 1850.

‡ See the investigations of *Dr. J. H. Bennett*, in the Edinb. Med. and Surg. Journal, vols. 58, 59, and 60. Also those of *Hasse* in Henle and Pfeufer's Zeitschrift. B. iv, p. 1; and those of *Kolliker*, in his Zeitschrift für Wissensch. Zoologie, B. i. p. 264.

This loss of structure occurs under two conditions; the first with and the second without the previous symptoms, or the subsequent appearances of inflammation—the first with an excess, the second with a deficiency of nutrition—for where softening exists without inflammation, there exists concomitantly an obstruction of the minute arteries of the brain; in other words, the tissue losing its power of tissue repetition, from deficient nourishment, gradually recedes to its primitive condition, and this, generally, so quietly that there are no mild to precede those more severe symptoms that ultimately await the patient.

There is much to be studied on this subject, and in these happier days of microscopical pathology it cannot be long before new data will be brought out.

All questions in pathological anatomy are of daily increasing interest, from their constant elucidation from microscopical studies; particularly is this true of the present one, forming these hastily written remarks; and, should what has been said induce others to pursue this same train of inquiry, they will find a wide range open before them, which may be carefully passed over with increasing delight and profit.

Boston, *February*, 1851.

Art. III.—*Bernard's Recent Discoveries in Physiology.* Reported by F. Donaldson, M. D., Baltimore, Md.

Having a few months since witnessed some interesting experiments by M. Bernard, confirming the results of his late important researches in physiology, and not being aware of any notice of them having as yet appeared in our medical journals, we propose giving some account of them to the profession in this country. We are convinced alike of their accuracy and of the important light they are calculated to throw upon some heretofore obscure points in medical science. Indeed, M. B. has not as yet published some of the discoveries to which we shall call attention, and the only mention we have seen of them in print was some notes given in the "*Union Médicale*" of September last.

The first point of which we wish to speak is the discovery of the existence of a communication between the portal vein, the ascending cava and the kidneys, by means of which the urine is secreted from blood which has not as yet passed through the general circulation. It is called by its discoverer the *hepatico-renal circulation.*

Authors had frequently mentioned the rapidity with which substances taken into the stomach could be detected in the urinary secretion, and we have often

read in the older writers of certain undefined secret passages. In fact, until cases of extrophy of the bladder proved that the urine came only from the kidneys, by means of the ureters, it was supposed by some that the bladder itself secreted it. Thus the effect of medicines on the economy in general and on the particular action of the kidneys was known to be different when given at different times, and physicians have acted upon the belief, but *why* no one knew. It had always remained undecided how it was that Tiedemann and Gmelin, and afterwards Magendie, in giving the nitrate of potash by the stomach should sometimes have been able to detect its presence in the blood and at others not, in the same animal. It was equally unexplained why poisons taken into the alimentary canal should sometimes have proved fatal, and at others not. Numerous theories had been thought of, but it was left to Bernard to find out the true explanation of these phenomena.

As not unfrequently happens with observers, it was in making some experiments with an entirely different object in view that M. B. was put upon the track of this discovery. He had previously proved that the mesenteric veins took up by far the greater portion of the digested alimentary substances, leaving to the lacteals, properly so called, the office principally of carrying off the oleaginous matters which had been digested by the action of the Pancreatic juice; and it was with the intention of testing what substances the kidneys could eliminate that he introduced into the stomach of a dog some prussiate of potash, and drawing off his urine in ten minutes he detected its presence by the addition of a few drops of a solution of a salt of iron, the beautiful blue of the prussiate of iron appearing immediately. He then killed the animal, and separately collected the blood of the renal veins and arteries, expecting to find the cyanide of potash in the artery and not in the vein, but to his astonishment the reverse was the case. The vein contained a large quantity and the artery scarcely a trace; the animal at the time, by accident, was digesting food. The experiment was repeated several times at different intervals, with invariably the same results, when the animals were in full digestion; but when they were not and the stomach and intestines were at rest, the contrary was the case—he could detect the potash in the blood of the artery, but not in that of the vein. Continuing his experiment, he traced the prussiate of potash from the stomach in its course to the kidneys, finding it in the vena porta, and in the vena cava below the point where the hepatic veins emptied, but nowhere else in the general venous or arterial system—thus showing that there was a different circulation during digestion from what existed at the time of abstinence. Having settled the physiological fact, it remained to solve the problem why it was that a substance taken into the stomach could be detected in the return circulation from an organ, when there were no traces of it in the artery which carried the blood to that viscus. If the fact above stated were not well ascertained and unquestionable, it would sound like an absurdity, it being so directly opposed to the universally received doctrine of the circulation of the blood—and such would it be, were there

not a peculiar apparatus adapted by nature for the express purpose, as we shall proceed to show.

During the period of abstinence, the blood which has been collected by the mesenteric veins passes easily through the liver, but when the stomach and intestines are full and these veins absorb a large quantity of fluid and digested matter, the circulation becomes necessarily more active, and owing to the double circulation of the liver, the portal and the regular, the blood can pass but slowly, and consequently the organ becomes congested. To prevent this too great congestion, M. Bernard has discovered that there is provided a peculiar system of vessels conducting a portion of the blood directly from the vena porta to the vena cava ascendens, without its passing through the capillary hepatic circulation. These blood-vessels are found below the hepatic veins at the point where the substance of the liver adheres to the inferior vena cava. In the horse, this communication is very easily demonstrated, by blowing into the vena porta, when the air is heard escaping by the cava. M. B. exhibited a specimen of these vessels of a horse, injected with wax. They were as large as the veins of the stomach, and emptied themselves by open mouths. When the liver becomes engorged, and can receive no more blood, it passes off to the vena cava by these vessels, which serve as a kind of diverticulum, and in this way the free secretion of the liver is protected, as it would be interfered with by an excessive accumulation of the animal fluid. The right side of the heart in its turn is also secured from a too great rush of blood from the vena cava. It is known that the presence of the capsule of Glisson around the branches of the portal vein accelerates the ingress of blood into the liver, whereas the hepatic veins not being so protected, contract with the substance of the organ with which they are so intimately connected, and in the cut surface of the liver, the divisions of the portal vein are closed, but those of the hepatic remain open. The hepatic veins have, moreover, an evident muscular texture, which, when it contracts, draws the tissue of the liver with it. The object of this system is to render more active the circulation, in proportion as the liver becomes engorged. M. Bernard claims having discovered that there exists in the hepatic veins and in the vena cava, from the point where the hepatic empties to the origin of the renal veins, longitudinal contractile muscular fibres of organic life, while in other parts of the venous system circular fibres only are found.

This peculiar construction gives the vena cava the power of preventing too much blood from rushing to the right auricle by contracting and forcing the fluid downwards. This muscular development ceasing opposite the kidneys, the blood is thrown through the renal veins into that organ, and thus the stasis in the cava is relieved. In some animals, as in the rabbit, there are four valves in the cava immediately below the orifice of the renal veins, to prevent the reflux beyond that point. In this way it is proved that the blood coming from the portal vein is subjected to the action of the kidneys before passing through the heart into the general torrent of the circulation.

He has thus proved anatomically what he had previously established as a physiological fact.

The embarrassing question may be asked how the return circulation goes on from the inferior extremities during this stagnation and reflux in the cava. This our author thinks is the office of the collateral veins, the lumbar and vena azygos—they having a constant physiological part to perform, and not, as has been generally supposed, merely the duty of carrying on a supplementary circulation in certain pathological cases of obstruction of the principal venous trunks. The muscular structure in the cava is almost as large as that of the right auricle. In the horse and rabbit it is remarkable, and appears to constitute almost another heart, whereas in the stag, the dog and the cow it is but slight. It is owing to the great development of this singular provision to prevent the liver from becoming too much engorged that certain animals are enabled to run such great distances. In man, where this organization is but slightly marked, it has often been noticed that the liver becomes enlarged from excessive engorgement from much physical exertion. This mechanism of the circulation is prominently seen in animals who take large quantities of aliments but slightly nutritive, or who drink much of fluids.

In this manner we think it is satisfactorily demonstrated that the renal veins have a double duty to perform; during the time of abstinence they conduct the return circulation from the kidneys; during digestion they act as arteries just as the pulmonary veins do for the lungs, and the portal vein for the liver. In effect, during the reflux of blood mentioned above there is a distinct pulsation perceivable in the cava and in the renal veins. This, though difficult to show, yet may be seen by killing a rabbit during digestion and opening immediately the abdominal parietes.

As M. Bernard remarked, when one reflects upon the matter, it is not so much to be wondered at, if we recollect that in fish and in reptiles there exists a porto-renal vein by which a certain quantity of blood passes directly to the kidneys from the mesenteric veins, only a portion being sent to the lungs.

We give to the reader the three following experiments, of which we were witnesses; the results of them cannot be accounted for but by admitting the existence of this smaller circulation.

First Experiment.—By means of a syringe and a tube there was introduced into the stomach of a rabbit a large dose of the cyanide of potash mixed with some carbonate of soda; this last to correct the acidity of the gastric juice, some previous trials having failed from the formation of hydrocyanic acid and the consequent death of the animal.

Before giving the poison, some of the urine was drawn off and tested to prove that it contained no trace of it. Ten minutes after its administration, a few drops only of the solution of the acetate of iron gave the rich blue colour so characteristic of the Prussian blue. In half an hour the animal was killed, the blood of the jugulars and renal veins collected and their serum tested; in the latter, the presence of the medicine was very evident, whereas in the

former there was scarcely a trace of it. Still more conclusive was the application of the test to the cut surfaces of the several viscera; that of the kidneys becoming of a deep blue colour, while the others revealed the least perceptible tinge. The inferior cava was much distended.

Second Experiment.—After cutting into the abdomen of a rabbit, and drawing out a small piece of intestine, M. Bernard introduced into one of the mesenteric veins a solution of the cyanide of potash of the strength of twenty parts to the hundred. On submitting the urine immediately afterwards to the test, it was found to contain a large quantity, and there were no unpleasant consequences resulting. Taking another rabbit, he injected into its jugular a solution of the same salt, of only two parts to a hundred, and in a few minutes, before the poison could be discovered in the urinary secretion, the animal was dead. The particular substance used is of no importance, the same result following the administration of any poisonous matter. It cannot be said that it was the liver which destroyed the effect of the medicine, for nearly the whole amount was passed off in the urine. The absence of any fatal consequences in the first rabbit can only be accounted for by the existence of the direct circulation, by means of which the potash was carried to the kidneys and there secreted; the small quantity carried to the heart, and thence through the arterial system, not being sufficient to act injuriously.

Third Experiment.—A solution of the lactate of iron was injected under the skin of the back of a rabbit, and a solution of the prussiate of potash under that of his thigh. The latter salt being very easily absorbed passed at once into the general circulation, and in a short time we were shown a blue coloration at the point where the salt of iron had been placed, a certain and unequivocal evidence of the presence of the prussiate of iron, which could only result from the contact of the two substances. In another animal the iron was inserted under the skin, but the potash given by the stomach, and after waiting much longer than in the first instance, there was no perceptible coloration, owing to the potash having passed off by the kidneys. On testing the blood from the jugular of the second rabbit, at first no coloration ensued; afterwards a slight bluish colour was discoverable, whereas in the urine a quantity of the salt was found, showing how small a proportion had entered the general circulation.

It may be well to remark, that owing to the slowness of the process of assimilation in the rabbit, it is almost always digesting.

Do not these experiments support and indeed prove the truth of M. Bernard's discovery? They explain facts which the imagination had vainly attempted formerly to solve, and show also the importance of choosing the proper mode of administering remedies; how, for example, one can sometimes produce much more energetic effects by the endermic method of introducing medicines. Their therapeutic importance in regard to the time to be selected for giving remedies to affect the general economy, or only the kidneys, will at once strike our readers. We can now account for the differences of the

amount of nitrate of potash found in the blood of the animals experimented upon by others; in some cases it having been given during abstinence, and in others when the stomach was full.

We cannot overrate the important bearing these researches have upon the value of an analysis of the urine, the kind of alimentary substance consumed not only influencing, but changing completely, the composition of the renal secretion. The old distinction between herbivorous and carnivorous urine is caused entirely by the azotized or non-azotized food taken by the animals. The human urine in a healthy subject is always acid, but any one can in the course of thirty-six hours render it alkaline by confining himself exclusively to a full vegetable diet. The secretion of the rabbit, which is ordinarily so filled with carbonates, can be made acid by its being fed entirely on nitrogenized food. M. Bernard has proved that the urinary secretion of all animals, herbivorous or carnivorous, is acid when they are fasting, for the simple reason that in the absence of nutriment from without they consume their own tissues, a principal part of which are nitrogenized matters. How careful should we be to impute the presence of an excess of uric acid, or of any of its compounds, or of the carbonates, to any defect in assimilation, without inquiring into the nature of the diet, and of the time when the specimen was voided.

Secretion of Sugar by the Liver.—It was in the *Archives de Médecine*, of November, 1848, that M. Bernard astonished the scientific world by announcing his discovery that sugar, which was so generally found in the vegetable kingdom, also existed in the animal, not as derived from amylaceous and saccharine alimentary substances, but as a constant secretion. As vegetables do not find it already formed for them in the earth, but manufacture it themselves, so he has proved experimentally its production as one of the results of the habitual physiological action of the liver. Since that time he has instituted a number of experiments, confirming and completing his former researches. His doctrine as now taught, we proceed to give.

It is known that there are three kinds of sugar which are commonly taken as alimentary material. First, the cane sugar; that found in the sugar-cane, the beet, the carrot, &c. Secondly, the glucose, which exists in the grape and in different sweet fruits. Finally, milk sugar, a constituent of the mammary secretion of all animals. Of these the grape sugar is the only kind which is assimilable, the other being changed into it during the process of digestion. It had always been supposed that when sugar was found in the blood, or in any of the animal secretions, that it must have come from food which either contained it or from which it could be formed; and chemists had decided that such could not be the case from the protein or nitrogenized matter. Physiologists had inculcated the ingenious idea that animals could not in themselves create any principle found in their bodies, but only possessed the power of destroying what was furnished by the vegetable kingdom, and thus denied the pos-

sibility of sugar being manufactured by the animal organization, which only consumed, they said, what was obtained from without. Based upon this notion was the recognized treatment of diabetes,* that of withholding from the patient all amylaceous articles of diet. That this mode of treatment sometimes cured and always ameliorated the disease was unquestionable. M. Bernard's attention having been called to some obstinate cases of this affection, which had resisted all efforts to cure them, notwithstanding the exclusive use of azotized food, he determined to see if he could solve the question how sugar could continue to exist in such quantities in the urinary secretion when there was nothing digested which could furnish it to the system. He commenced his experiments by taking two dogs of the same size and age. One he put upon an amylaceous and saccharine diet, and the other upon meat exclusively. In a few days, by means of a syringe introduced into the jugular, he drew some blood from the right auricle of each of them, and after permitting the clot to form he tested the serum for sugar, and to his surprise, he found that in both was a large quantity. Astonished at this, he repeated a number of times the experiment, with always the same results, invariably finding sugar in the right auricle, whether the animals had been kept on nitrogenized or non-nitrogenized substances, and even when they had consumed no food for days. Pursuing his researches, he attempted to discover where the sugar came from, knowing that the right side of the heart could only be its receptacle. He accordingly examined the contents of all the principal venous trunks, the vena porta,† the inferior and superior cava, the jugular, &c., and, singular to say, he could nowhere detect its presence but in the hepatic veins and in the ascending cava, and thence to the right auricle. There being no trace of it in the blood flowing into the liver, nor yet in the pulmonary artery, was not our experimenter justified in coming to the conclusion that it was fabricated in the liver and destroyed in the lungs? That there were two sources from which the system obtained sugar; one from aliments, the other from the liver as one of its proper normal secretions?

Not content with this, he examined the parenchymatous tissue of the principal organs, and found a large quantity of sugar in the liver, some traces of it in the lungs, but he was unable to detect it in any other. Elated with what he now considered his brilliant discovery, he reported it to MM. Pelouze and Dumas, two of the most eminent chemists in Paris. They, naturally incredulous in regard to a point so calculated to upset the established doctrines as to the formation of sugar, insisted that there must be some mistake, and after

* We apply this term as confined to the disease in which there is sugar found in the urine.

† It may be well to add, for the benefit of any who may be disposed to repeat these experiments, that it is important to tie the vena porta near the liver immediately on opening the abdominal parietes, or otherwise there will be a reflux of the blood of that organ into it, from the removal of the pressure and the consequent detection of sugar in the vein.

witnessing the experiments, they resorted to the plausible theory that as the liver had the peculiar property of retaining and accumulating within its tissue certain metallic poisons, as arsenic, &c., it was probable that the animals which had been fed upon nitrogenized food or kept fasting had a few days previously eaten amylaceous substances, and thus the sugar formed from them had not all passed off from the liver. To show the correctness of his opinion, M. Bernard kept dogs for six weeks from all species of nutriment from which it was possible that sugar could be formed, and still as before he found it both in the blood coming from the liver and in the organ itself. With the energy for which he is so justly distinguished, he continued his investigations on different animals, and satisfied himself that sugar was to be found as the secretion of the liver of the horse, the ox, the dog, the cat and the rabbit; moreover, that it exists in birds, fish, reptiles, even in oysters and snails. And what is still more conclusive as to its being produced in the tissue of the liver, is that it can always be detected in that organ of a fœtus after the fifth month. Further still, the fœtus of oviparous animals which are separated from the mother have exactly the same kind of sugar in their liver and in no other organ!

Following up his experiments, M. B. has proved conclusively that the sugar he had found was a secretion by showing the influence of the nervous system over its production. As an irritation of the ophthalmic branch of the fifth pair leading to the lachrymal gland produced a free flow of tears, so a slight galvanic shock, or irritation with a knife applied to the medulla oblongata at the point of origin of the pneumogastric nerve, caused an increase in the secretion of sugar; so much so that a large quantity was carried off in the urine a few minutes after the operation. A violent shock to the corpora olivaria, or the cutting through of the nerve, would arrest the secretion, as was shown by autopsies made some hours afterwards. We give these not merely as statements made by the professor, but as confirmed by experiments repeated in our presence. We have seen several instances where cases of diabetes were produced in dogs and rabbits at pleasure—the urine drawn off previous to the operation giving us no evidence of the presence of sugar, whereas that voided twenty minutes after contained a large quantity, as did the blood and every secretion except the saliva, into which it never enters. So true is this that, in one instance, M. B. detected it in the urine of some kittens who had been fed by a cat, on whom he had a few minutes previous operated, showing that it had been transmitted through the milk. We have witnessed the arrest of the secretion by a violent shock to the nervous system, and by the communication of the nerve being destroyed, so that the urine, which a few minutes previous had contained a large quantity, was rendered perfectly free from it. Subsequent experiments have somewhat modified this last fact, M. B. having in some cases produced the secretion by irritating the olivary eminences notwithstanding the previous severance of the nerve. The probable explanation of this is that the grand sympathetic also serves as a conductor, as in a case of diabetes

observed by Duncan; its volume below the diaphragm was found to be three or four times greater than what it normally should be. The portion of the medulla oblongata which appears to be most intimately connected with the production of sugar in the liver is not more than three lines in diameter, lying in the groove between the corpora restiformia, and the corpora olivaria, and over the adjoining part of the latter. M. B. can predict the amount which will be secreted from the depth of his incision; if the instrument employed is not thicker than a millimetre, or the twenty-fifth part of an inch, the proportion in the urine will be four parts in a hundred. Beyond a certain point, of course, there is great danger of killing the animal or of arresting the secretion.

The continuance of the presence of sugar in the urine after the operation is variable, according to the animal experimented upon, and also the manner employed. In general in the rabbit it lasts forty-eight hours, and in the dog four days, and in one instance as long as seven days.

There were several phenomena which presented themselves as accompanying these experiments which are well worth noticing. The animals were continually in motion; their excitability was such that one might have supposed that some preparation of strychnine had been used. This continued until the sugar could no longer be discovered in the urine, as did also the acceleration of the respiration; which can be explained by the extra duty the lungs had to perform in destroying so large a quantity of sugar. May not this excessive fatigue of the respiratory organs account for the liability of diabetic patients to pneumonia and phthisis, which so often are the cause of their death. A curious fact elicited was that the temperature of the body was diminished several degrees. This is singular, as M. Magendie, judging from the fact that the amount of sugar secreted was greater in birds and other animals where the temperature was higher, and indeed in proportion to the elevation of the temperature, had supposed that its destruction in the lungs was one of the causes of animal heat. In the rabbits rendered diabetic there was an increase of the urinary secretion, as there generally is in the human subject. The amount of salts appeared to be diminished, but this was owing to the quantity of liquid. As to the perspiration, which in man is to a great extent suppressed, it was difficult to decide on the animal.

The secretion of sugar may be arrested by different causes, as an acute pain caused by any operation on the nervous system, such as exposing the medulla oblongata, or pricking the sciatic nerve. Indeed, in renewing his experiments on the excitability of the eighth pair, M. B. has been surprised to find that often instead of augmenting the secretion, he has caused it to disappear, though the irritation appeared but slight; and now he acknowledges that the suppression takes place as a result of almost any lesion of the nervous system, except that of the olivary bodies and of the space about them, before mentioned. Diseases, such as intermittent fever, pneumonia, &c., or indeed anything which affects sensibly the nervous system, interrupt this se-

cretion. There was a case in the service of M. Andral of a diabetic woman who ceased to discharge sugar in her urine at each attack of diarrhœa, to which she was subject. A slow lingering death from any cause has this effect. It is known that frequently in diabetic patients there is an absence during the last stage of the disease of the presence of the characteristic symptom in the urine caused by the complete exhaustion of the nervous energy. So it is not surprising if sometimes no sugar is found in the liver of patients who have died of diabetes. M. B. has invariably detected the presence of sugar in the livers of different animals, as he procured them from the butchers. Anxious to get a human liver of a subject that had not died of a disease which, by its long continuance, might have affected the saccharine secretion, he obtained that of a man who had been guillotined the day previous, and experimenting upon it before the class, he found it contained somewhat more than an ounce of diabetic sugar. A short time previous, he had had an opportunity of examining a patient of M. Rayer, who had for a long time been suffering with glucosuria, of which he had died suddenly; the amount of sugar in his liver was two ounces and a half, more than double that of the healthy one. In general, animals who eat amylaceous substances, secrete sugar in greater quantities than others, and the longer abstinence is prolonged the less the liver contains. Adults require and secrete more than the young.

As we mentioned before, the only kind of sugar which is assimilable is the grape, and all other varieties are converted into it by the combined action of the bile and the pancreatic juice before being taken into the general circulation. The sugar found in and secreted by the liver differs from the ordinary glucose only in certain physiological properties, in being more readily absorbed into the circulation, while it is more easily and in greater quantities destroyed in the lungs. It is proved to be of the second variety, moreover, by its difficult crystallization, by its reducing the salts of copper, and from the fact of its refracting rays of light to the left. It is distinguishable from the sugar of milk because the latter is indestructible in the blood, and never ferments, and it also corresponds in every particular to the saccharine matter of diabetic urine.

M. Bernard, in testing for the presence of sugar, used all the different modes heretofore proposed, the taste, evaporation of the liquid, fermentation on the addition of yeast, and the consequent production of alcohol and carbonic acid; the process of M. Péligot, which consists in making a saccharate of lime, and that of MM. Biot and Clerget, by means of polarized light. The most delicate and surest one employed was the double tartrate of copper and potash, which is known as "la liqueur de Bareswil."* It is Trommer's test

* We give the proportions of this reactive as one which is readily and easily applied.

℞.—Crystallized carbonate of soda,
Caustic potash, āā ʒi. ℈i.
Bi tartrate of potash ʒi. ℈ii.
Sulphate of copper ʒi.
Distilled water Oj.—M.
To be boiled and then filtered.

somewhat modified, the copper and potash being used together instead of separately. The addition of a few drops of this solution to the suspected urine or to the decoction of a piece of the liver, or to the serum of the blood, will, on the application of the heat of a spirit-lamp, in a few minutes reveal the presence even of a minute proportion of sugar by the liquid becoming at first of yellowish green, and by degrees more and more of a reddish-yellow colour in proportion to the amount contained. This coloration does not take place with any other variety of sugar but the glucose. Sometimes, however, the presence of organic matter may produce deception, and to get rid of it, it is recommended to precipitate it by the acetate of lead, and filtering it, to add some hydro-sulphuric acid, the liquid to be again filtered before using the test. In herbiferous urine it is well to add a few drops of sulphuric acid to free it of the amount of carbonates which may render obscure the coloration. The potash destroys the sugar, transforming it into glucic and paraglucic acid. The salt of copper yields part of its oxygen to substances which have a great affinity for it, and passes to the state of a hydrate and afterwards an anhydrous protoxide, and thus is caused the change of colour from blue to yellow and then to red. The amount of copper reduced being in proportion to the quantity of sugar, it is easy to calculate how much of the latter is present.

The interesting question arises as to what becomes of the sugar, whether secreted by the liver or formed from alimentary substances. We have seen that it is destroyed in the lungs, where with the blood it is exposed over a large surface to the contact of the air. M. Bernard proved by a simple experiment that the destruction of sugar was not, as was its production, under the influence of the nervous system; but altogether a chemical phenomenon. He cut both the pneumogastrics of an animal, and injecting some grape sugar into the blood, found that it was consumed, as in the case of the integrity of the nerves. Moreover, sugar in blood disappears when in contact with air out of the body, as well as in the lungs. It is necessary that the blood should be alkaline for this to take place, for if an acid be added, the destruction is prevented. The contrary is the case in regard to cane sugar, the presence of an alkali interfering with its being destroyed. Attempts have been made to render the blood of animals acid by the injection of vegetable acids, but death has always ensued too soon. M. Bernard found on adding an alkali to blood coming from the liver, that the destruction of the saccharine principle took place very gradually, and he is disposed to believe that the usual alkalinity of the blood favours, but is not the cause of, the consumption of the sugar, which is owing to a peculiar organic matter, some ferment which he has not yet been able to seize. He thinks this supposition probable from knowing the effect in other parts of the economy of animal substances which exist in very small proportions, and which apparently have but little power; the diastase, like the strong acids, converting amylaceous matter into sugar. This ferment acts not like yeast, by producing alcohol and carbonic acid, but by converting the sugar into lactic acid and carbonic acid; the latter of which

is exhaled from the lungs. In the artificial diabetes produced on animals, the amount of carbonic acid given off by the lungs was much greater than it was before the experiments; and furthermore, their arterial blood became much darker, and gradually resumed its normal tint as the excess of sugar diminished. Thus it was proved that the amount of carbonic acid was in proportion to that of the sugar. It is calculated from experiments by injecting this diabetic sugar into the veins, that the lungs can destroy over and above what they ordinarily do, as much as five drachms (℥v), whereas of the common grape sugar only one drachm (℥i); all above this passing off in the secretions. Cane sugar thus introduced is found untouched in the urine.

If the secretion of sugar by a lesion of the olivary bodies surprises physiologists, its arrest by any trouble of the nervous system should not, for it has often been observed that the secretion of the mammary gland can be altered in quality or even entirely suspended by a strong moral impression, and still more by an acute physical pain. In the same way, a violent passion or fright has affected the formation of the bile, the elements of which remaining in the blood, cause a jaundiced appearance of the eyes, the skin, &c.

This discovery of this hepatic secretion shows us the nature of diabetes mellitus, for that disease has as its principal symptom an excess of this identical sugar.

At first Bernard was inclined to believe that the cause of the production of an abnormal quantity was some affection of the eighth pair of nerves, but his more recent researches have somewhat modified this opinion. Whether the primary lesion exists at their point of origin or in the liver itself it is difficult to decide. This organ is generally hypertrophied, but its anatomical examination has as yet shown nothing. The ancient theories, explanatory of this singular disease, are proved in a great measure to be groundless. The hypertrophy of the kidneys and the lungs as described by M. Rayer is accounted for by the extra duty they have to do; the one in eliminating the sugar from the blood and the other in its consumption.

Rollo regarded it as the effect of a disease of the stomach in which the gastric juice contains a principle not found in the healthy state, which acts upon starch, converting it into sugar. M. Bouchardat in urging this view, states the fact that large quantities of sugar have been found in matters vomited by diabetic patients, but this is no proof, for, as we before mentioned, the gastric juice itself, like the other secretions, contains more or less where from any cause there is an excess in the system. The ingenious reasoning of M. Bouchardat is rendered unnecessary, it being now established that it is not only from feculant substances taken into the stomach that sugar is formed. Moreover, it is not necessary, as he states, that sugar should first be transformed into lactic acid before being absorbed, it having been proved that grape sugar as such enters into the circulation and passes off by the lungs. M. Mialhe's idea of diabetes is founded upon two suppositions, both of which are gratuitous. In the first place, it is not the alkalinity of the blood which

destroys the sugar, it being merely an accessory; then the suppressed cutaneous transpiration does not render the blood either acid or neutral, for it remains invariably, so Mr. Bernard stated, alkaline.

Experiments of suppressing the cutaneous exhalation of animals by varnishing them all over have neither rendered them diabetic nor yet altered the alkaline character of their blood. In admitting that the diabetic state is an exaggeration of a natural function of the liver and consequently a disease of that organ, it still remains to be determined what are the causes and how they act to produce it. It is not only the thirst which is increased in persons suffering with this disease, but the activity of all the nutritive functions is greater; the appetite is more craving; the respiration accelerated, &c.

The great frequency of this disease in England and Germany, where it is common among children and very old persons, though it more generally attacks the middle-aged, is accounted for by the habitual use of fermented liquors, which, it is said, favour its development. It is believed that debilitating causes, bad food, excesses, the passions, low and unhealthy habitations, render its production more easy.

The last point we propose noticing is the therapeutical application which, after all, ought to be the end and aim of all scientific medical researches. As it is certain that aliments which contain sugar or starch increase the amount of saccharine matter in the urine of diabetic patients, and thus aggravate the disease, they should, as far as possible, be avoided. In this way, we are able to destroy a part of the morbid element; but it is positive that, notwithstanding their suppression, the sugar continues to show itself in the secretions.

M. Bernard has found that the acids and the ammoniacal preparations recommended by some fatigue the stomach and effect but little; the efficacy of astringents has been much overstated. Quinine, in combination with iron, has produced good results. Any remedies which act decidedly upon the nervous system, such as alkalis (urged by Mialhe), iodine (tried by Lugol), opium, creosote, mercury, &c., are beneficial, but unfortunately their effect is but temporary, the constitution soon becoming accustomed to them. M. B. hopes that observers will in future direct their attention in their treatment to the liver and to the nervous system, and these experiments may yet give us some valuable results, now that the nature of the disease is settled.

We have already occupied so much space that we must postpone, for a future communication, giving the results of some investigations in regard to the *formation of fat*, the *action of the pancreatic juice upon oleaginous substances*, &c., which we hope will not prove uninteresting to our readers.

ART. IV.—*A Statement of two Suits for Malpractice, tried in November and December*, 1850, *in the Court of Erie County, Pa.* By WM. MAXWELL WOOD, M. D., Surgeon U. S. Navy.

IN a former number of the "*American Journal of the Medical Sciences*," (October, 1849,) I reported the extraordinary course taken, in this county, by suits for malpractice, showing that their result has been to visit the penalties of the law upon educated and skilful practitioners, and to give a controlling influence to quacks and pretenders, who, upon the witness' stand, direct the verdicts of the juries.

In that article I alluded to two suits impending over a well-educated young German physician, then absent in California. He has since returned, and the suits have been prosecuted to a conclusion. They present such extraordinary features in the nature of the testimony—the charge of the judge—and the verdicts of the juries, that they seem to be worthy the attention of the profession; and among its proposed reforms, that surely would be a desirable one which would insure the fixed principles and established facts of the profession a value as evidence over the crude opinions of ignorant and perhaps interested individuals. If the standard authorities of medicine and surgery are not evidence in our courts of justice, the educated practitioner has but little to hope from the verdicts of juries, as it is probable that the medical men of local authority and influence may differ widely in the views from the learned men of more general authority. The testimony was very voluminous. I have given every point, omitting unnecessary repetitions.

CASE 1st.

ALVINA C. BOOTH *vs.* CHARLES BRANDES. } Tried Nov. 27th, 1850.

Louisia Wood testified that, on the 24th of January, 1848, Miss Booth and herself called at the office of Dr. Brandes, and both had what purported to be vaccine matter put into their arms, the Dr. moistening a piece of scab upon a glass and using the same matter and the same instrument in both cases. Miss Booth had never been vaccinated, the witness had been in her childhood. After inserting the matter and it being dried, the Dr. placed a piece of plaster over the punctures. He accompanied them to the door, and said, "Please call again and let me see what it proves to be." Their arms pained them on the way home. On Friday (the vaccination having been on Monday), both the girls went in an open wagon to Fairview (a village about twelve miles from Erie), arrived there about sundown, having spoken to no one, nor stopped at any place on the road. On Monday, Miss Booth was taken very ill, with severe vomiting. On Tuesday they returned to Erie, and Dr. B. was sent for. He reproved them for going to the country; said "Miss Booth had taken cold;

and would likely have varioloid." He said that erysipelas, scarlet fever, and scrofula would run into varioloid, and from that to small-pox. Said when anybody got cold it would do so. He turned to me and asked, "Has your arm worked, Miss Booth?" I said it had not; spoke before I thought. He said it must work, it will work; it is pure genuine matter; told me to call over again, he would try it over. Miss Booth's arm was very much swollen; the place where she was vaccinated was about the size of a shilling, very deep sore, looked red and angry.

The case proved to be one of bad confluent small-pox, and the plaintiff is now very much scarred by it. Was sick three months. Miss Wood testified further in relation to herself, that she lived twenty or thirty rods from the house in which Miss Booth was sick, there being three houses between them. On Wednesday, the witness, Miss Wood, was taken sick, and thinking she was going to have small-pox, she removed to the house in which Miss Booth was, where she remained three weeks. The following I give in her own words.

"On Friday my arm was badly swollen. Dr. said to poultice it; tried to stop my vomiting but could not; my arm was green where it was vaccinated. He took the plaster off; next day said I would not have the varioloid; only fifty pimples on me; said to stay where I was; sent for Dr. Dickinson. He said to take me over to Booth's; my arm turned green, swelled very bad, had to wear loose dress. Pain would extend to my shoulder, and then to my head. Sometimes it would extend to my other shoulder. It threw me into fits. Plaintiff was not exposed to my knowledge to small-pox."

On her cross-examination this witness testified that she and the plaintiffs had come from Ohio on the 24th of December, that she was twenty-one or twenty-two years old when vaccinated by Dr. B., was going to school at the academy, had told no one that. They had been exposed, and had heard that the little girls who lived in town had the small-pox. The room in which Miss B. was sick was very warm; had a stove with a fire in it. Alvina Booth, sister to the plaintiff, testified in substance as the preceding witness, and to the following points in addition. The Dr. said her sister had the varioloid, not to let the air come to her face. She would not have her pitted for fifty dollars. Her health before this was good, though not a strong constitution. Since her health had been very poor; red spots would come out on her arm and extend up to her neck. They varied in size, and would continue for an hour or more. This lasted to the present time. She is sometimes very weak, so much so that she can hardly walk; sometimes is not able to sit up more than half the day. Her eyesight is not as it was before by any means. First year she could not see to read; cannot in the evening now. A black man who lived about forty rods from where we did died of the small-pox about 1st December.

On her cross-examination she testified that two others of the black man's family had small-pox, one at the same time with him, and one afterwards.

"The little girls had it on Ninth Street near the academy. It was near the academy some time in January, I think. I did not take the small-pox; Dr. Vosburgh vaccinated me. Have had no conversation with Miss Booth or Miss Wood in this matter. My sister had the small-pox, but Miss Wood had not."

Lewis Booth, brother of the plaintiff, gave in all points known to him the same testimony as the preceding witnesses. On cross-examination, said his sister had always been weakly.

Asaph Booth, the father, testified to the fact that his daughter had never been vaccinated in childhood.

Christiana Carr testified to the sickness of Miss B., and said, "Saw Miss Wood's arm the day she went to Walnut Creek (Fairview); there was a greenish water running from it; the arm was swollen badly, sore coloured green." This, it will be noticed, was four days from vaccination. Sandford Carr proved the going to Fairview, and that the girls got wet from rain.

The next witness was considered a more important one, and is thought to have influenced the decision of the cases. I therefore give the testimony in full.

Joab Slocum. "I was vaccinated by Dr. Brandes, three years this coming winter; not far from a month before the plaintiff was; I became sick in a few days. I asked the Dr. if I had the small-pox? He said he thought not; that the vaccine matter was working with the erysipelas in my system. I told him I thought it was the small-pox. He got a scab off my arm. He said he intended to use it. He said that makes no difference, and took it along. I did have the small-pox or the varioloid. Have seen the small-pox since, and think it was the small-pox. I was broken out considerably on my head, and other parts of my body. Had chills and fever. About the time of breaking out, I had fever. The night before I broke out I was flighty. There was a smell about me such as I have smelt on small-pox patients."

Cross-examination.—"It was about 1st of January I was vaccinated. Some spots on my face; could see pimples on my arm. Have always had erysipelas. There is a kind of fever when the erysipelas is coming out. It comes out not all over me. Erysipelas comes out, you know, in little pimples, watery pimples. This time they came in large lumps. Some of them I opened, and they had a matter in them. Dr. took the scab off from my arm the place he had vaccinated; never was sick enough to be laid up with the erysipelas. It was the thirteenth day that I broke out, and the same day Dr. took the scab. I felt fever some time before I broke out. The breaking out was not like the erysipelas."

Emily Slocum, wife of the last witness. "In January, 1848, about the 1st, my husband was taken sick; had been vaccinated. The Dr. was sent for. The Dr. got a scab then. I told him that I thought the scab would not be good, and he said there was nothing of erysipelas about that; Brandes said it was not the small-pox. He said the kine-pox sometimes broke out so. Slocum

was broke out on his stomach principally. He had frequently had the erysipelas before. The pimples did not look like erysipelas pimples. I heard the same conversation my husband has mentioned. He was light-headed and had much pain. Broke out considerable. The disease compared exactly with the cases of small-pox I have since seen. Saw Miss Booth, Miss Henclin, and my own child. This was since my husband's sickness. The Dr. said that the child had contracted the disease from the father by rubbing a sore place on the cheek against his arm. It was the last of January the child took ill; said it was the kine-pox. The child did not sleep with its father. The child occupied the bed that I did. The child was but little sick. The sore looked as if it had been vaccinated on the face. The mark is like a pit; only one mark. The marks on the child were like those on my husband."

Two other witnesses were called to prove that they had seen red spots on Miss Booth's face for half an hour at a time.

We now come to the medical testimony.

Dr. Jacob Bosbrugh "had been a practicing physician for thirty-five years; saw the plaintiff with confluent small-pox; described the character and course of small-pox; said the ordinary symptoms of vaccination were mild; but that death sometimes resulted from it, though he never had seen a fatal case. A breaking out on different parts of the body often occurs from vaccination. He had frequently seen pimples come out after vaccination."

Dr. S. Dickinson "saw Miss Booth two or three times. It was a bad case of confluent small-pox. The only one he had ever seen so severe was fatal. After inoculation, the premonitory symptoms would begin from six to eight days. The rash we look for in four days or so afterwards. *Never saw a case of inoculation.* A person may be inoculated and have confluent small-pox. The confluent scarcely ever leaves the system as good as before; chronic affections of the liver, lungs, &c., result; would expect less stamina of constitution afterwards than previous. The eye might be left bad, weak. Don't know in my experience of any organ but the eye being affected. Was called to attend Mrs. Miles about 22d January; she had variola. (This lady's testimony to her having small-pox was read in court.) Vaccine matter would not from cold run into varioloid; might as well expect a crop of corn from buckwheat; erysipelas, scrofula, or scarlet fever would not run into varioloid.

"Saw Miss Wood's arm. The arm was considerably swollen, but not more than ordinary cases sometimes present. The edges were considerably rougher, and the sore was dug out instead of being filled up as vaccine pustules often are; around the sore there was a deep-seated greenish hue, such as I had not seen before. It was not a healthy sore from *inoculation* or *vaccination*, nothing like a vaccine pustule. There were some small pimples around the sore; I have never seen a rash from vaccination, but authorities speak of it. If the patient had been previously vaccinated, I cannot tell what would be the appearance of the sore. I told Miss Wood she would not have the small-pox, because she was in a typhoid state."

Cross-examined.—"Small-pox does not exist without inoculation or contagion; much small-pox in town that winter, and more in the spring; the case of the black family was about this time; have no doubt that vaccine rash might be mistaken by ignorant persons for small-pox; small-pox is sometimes epidemic; confluent is more likely to occur in the natural way than from inoculation; vaccination might arrest the disease entirely, if done after the virus is received into the system; vaccine and small-pox will run together. There is a difference between the *vaccine pustule and the inoculated pustule; could tell the difference as a general thing.*"

Dr. Peter Faulkner.—This witness practices both as a regular physician and as a homœopathist. "He saw Miss Booth with bad confluent small-pox. The premonitory symptoms of small-pox vary in different persons. Soon after the insertion of virus pain occurs. From the fifth day the febrile symptoms commence. Sixth day, pain in the back and head, with vomiting; about the seventh or eighth a rash makes its appearance, sometimes sooner, about the face and neck, and parts that are exposed to the air; ninth day, the pustules are full. Generally a secondary fever on the fourteenth day, or about that. The sequelæ of small-pox, as far as my experience goes, are not bad when from inoculation.

"Saw Miss Wood's arm. It was much swollen, an ulcer about half way between the elbow and shoulder, deep, uneven; surface about the ulcer discoloured, yellow and green. I could not say that it was produced by vaccination. It was more extensive than a vaccine sore. She was in pain, and nervously irritable. There are descriptions given by authors of very malignant results from vaccine matter. Small-pox matter inserted into the arm of a person who had been vaccinated would merely suppurate and pass off again. It might produce a mild form of small-pox. Matter taken from a scrofulous subject would, if the system was predisposed, produce bad effects perhaps. Confluent small-pox may follow from inoculation—*frequently results in confluent small-pox.* Inoculation generally produces a mild disease, *because the system is prepared.*

Cross-examined.—"Seventh to ninth day the pustules come out; generally the case in inoculation; taking cold has in my own practice caused extreme inflammation. Small-pox is epidemic or rather endemic; it will, for example, when in Erie be taken by persons who breathe the effluvium. There is a predisposition to take small-pox when it is in the neighbourhood. *Saw two hundred cases of small-pox from inoculation; never saw but one case of confluent small-pox from inoculation.*

"Confluent small-pox may result from inoculation unless the system is prepared for it. *Don't know any difference between inoculated and natural, unless the system is prepared for it.* Contagion may occur at distance of twenty feet."

Dr. A. Beebe testifies generally as to the nature and course of small-pox; "that Miss Booth's was a bad case of confluent small-pox, and Miss Wood's a

very sore arm. He had seen very sore arms from vaccination. Inoculation generally produces a mild disease, but the confluent might result from it. He believed that the only preparation necessary for inoculation was to reduce a too full habit, and to nourish a feeble one, but that a healthy state of system needed no preparation. There was considerable small-pox in Erie the same season as this case."

Dr. C. T. Perkins had seen small-pox follow inoculation, but it was suspected the lady had been previously exposed. Contagion produces a more malignant disease than inoculation. It is usual to prepare for inoculation by diet. Vaccine matter sometimes produces very bad and malignant sores.

Dr. W. B. Dodge, an eclectic physician.—General testimony as to the nature of small-pox, natural and inoculated, his views being those of the standard authorities.

This closed the medical testimony for the prosecution. On the part of the defence five medical gentlemen were examined, whose testimony went to show the general mild character of inoculative small-pox, irrespective of preparation; and that sometimes the disease appeared to be epidemic; that there were frequent cases in which the patients could not tell when or how they took the disease; and the two cases reported as having occurred in the Eastern Penitentiary of this State were alluded to. These gentlemen also testified to the dangerous ulcers which sometimes follow re-vaccination.

The remarks of Gregory in "Cyclopædia of Practical Medicine," of Ford in his "Practice," upon the inflammation and ulceration of re-vaccination were read to the jury; and also the cases from the Boston Society for Medical Improvement, reported in the number of this Journal for Oct. 1850. Witnesses were also brought to prove that Dr. Brandes spoke most imperfect English, and generally required an interpreter at the time he is said to have made the remarks to the plaintiff and others respecting the nature and course of the small-pox, or varioloid, and the diseases which might change into them.

The charge of the judge (Church) was a most able one upon the relation between the community and medical men, and the obligations which one owes the other. He, however, threw out the authority of all medical works as testimony, and that of the Boston cases.

The next case was that of Miss Wood, now Mrs. Brown, against Dr. Brandes for the sore arm resulting from this vaccination.

The testimony was in general a repetition of that in the former case, excepting that it was proved on the part of the prosecution that the lady, since having the inflamed arm, had been subject to fits, and that, during these fits, her head was drawn towards the arm which had been affected. The judge in his charge dwelt upon this as a fact of some value. On the part of the defence evidence was brought to show that she was reported to have had a fit before the vaccination. From the description of these fits they were nothing more than hysterical. The medical testimony proved the bad results some-

times following re-vaccination, and cases were brought before the jury in which very sore arms had resulted, both in original and re-vaccination, from the use of matter which in other cases had acted well. The same works and reports were read in this trial as in the other.

From the evidence in these cases, the profession, it is supposed, will see nothing more than facts of ordinary occurrence, and for which the practitioner should not be held responsible. During the prevalence of small-pox, and while it was or had been within a few rods of their residence, two adults seek the protection of vaccination; one has never been vaccinated, and the other has been in her childhood. One week afterwards, the individual who has never been vaccinated is attacked with what proves to be a bad case of confluent small-pox, lasting for three months, the poison of which may have been in her system for two weeks before she was vaccinated. The other case results in a sore arm, such as all experience, and the very recent experience of the most able men in the profession, show to be a frequent result of re-vaccination, a result against which warning is given by all respectable medical authorities. Yet in both these cases it is proved that the same matter is used. The nature of the case of sore arm alone would show that the matter used was vaccine matter, and the confluent virulent character of the small-pox case ought to have shown the chances so much in favour of a natural infection as to have exonerated the Dr. according to all principles of justice. But we find the established facts of inoculation set aside by medical men claiming to be respectable, showing that there is no difference between natural and inoculated small-pox, except from the system being prepared for inoculation.

The stupid absurdity and ignorance of the man Slocum's testimony need no comment. The vaccine pustule on his child's cheek renders it most probable that he had been vaccinated, and he may at the same time have had some aggravation of the cutaneous disease to which he is subject. If Dr. B. told Slocum that the crust he took from his arm would not carry erysipelas, it is highly improbable that he told the plaintiffs that this and other diseases would pass into varioloid; and the very imperfect manner in which he spoke English at the time renders it almost certain that the witnesses were mistaken, or testified their own ideas upon the subject, and which they may have misunderstood him to sanction. The Dr. speaks imperfect English now.

The juries came to a different conclusion from what it is supposed the profession will in regard to these cases, and for the first charged the Dr. fourteen hundred and fifty dollars, and for the second five hundred dollars. A new trial was asked in the first case, but refused. If the truth is in the judgment it is supposed the profession will form of these cases, a very great wrong has been done this young foreigner—a wrong not limited to the large pecuniary fine, but extending to the injury of his professional reputation, and to the distress which is inflicted by an act of injustice done under the forms of

law and justice. A great wrong has been done the profession, because the successful result to the prosecution of one such case may beget many other equally unfounded prosecutions, and render the performance of professional duties at all times unsafe to every practitioner.

It would seem, from these cases, to be highly important for the profession to take some steps to determine what shall be medical evidence, and to secure for our courts such testimony as shall be reliable. It would certainly seem rational that the principles and the facts recorded by standard authors, those who are acknowledged as such by the profession, would afford more correct information to juries than the individual opinions of ill-educated, prejudiced, and rival, perhaps hostile, practitioners; or than the opinions of unprincipled quacks.

As it is not a subject of statute regulation, the presumption is that the same principles would be acknowledged in the courts of Great Britain and of this country; but such is not the fact. In the cases now reported, the judge insisted upon the individual opinions of each medical witness. The following quotation from a review of "Hooker's Physician and Patient," page 505 of the October No., 1850, of the "British and Foreign Medico-Chirurgical Review," would show a different view upon the part of the English judge:—

"One eminent physician, not many weeks ago, when asked his *opinion* only by counsel in the case of Robert Page, was sharply reproved by the presiding judge (because, according to his oath, he answered the question so put) with the insulting remark, that he (the judge) would not allow medical men to take upon themselves the functions of judge and jury."

This matter certainly should be clearly understood, and some measure taken to prevent the evils shown by the suits for malpractice now reported.

I have examined the statement of the evidence as reported in the foregoing statement, and the same is reported substantially as given in evidence on the trial.

JAMES C. MARSHALL,
Atty. for Plff's.

Erie, *March* 15th, 1851.

I have also examined the foregoing condensed statement of the evidence in the cases of Booth *vs.* Brandes, and Wood *vs.* Brandes, and find it to contain a fair statement of all the material evidence given on the trial.

WM. A. GALBRAITH,
Atty. for Defendant.

ART. V.—*Cases of Apoplexy, and the Various Forms of Softening of the Brain; with Remarks.* By W. HENRY THAYER, M. D. [Read to the Boston Society for Medical Observation, October 21st and November 18th, 1850.]

CASE I.—*Apoplexy, with Effusion of Blood.*—Mrs. A. is an American woman, æt. 45, very tall, and of large frame, but spare, and of sallow complexion. She has borne seven children, but has been a widow for ten years past. Her son reports that, although not very robust, she has always been free from long or serious sickness; the only trouble which he knew her to suffer being attacks of "sick headache," to which she has been liable for years.

My acquaintance with her began in May, 1850. She has consulted me once since, on account of a slight attack of cholera morbus. From one of her servants I learn that, ever since she has lived with her (a period of five months), Mrs. A. has been the subject of almost daily pain in the back of her neck and extending up through occiput to vertex, which has frequently been relieved by friction. Her catamenia have been regular, beginning every four weeks, continuing always one week, accompanied with severe pain in the pelvic region, usually so great as to oblige her to go to bed for a day at least. During her catamenial periods, the pain in head and neck has been much aggravated, without any nausea or vomiting. Her last catamenial discharge ceased on Sunday, Oct. 13th. She has been habitually costive.

It may be mentioned here that, since the 1st of May, 1850, she has been matron of an asylum for aged women, and has there been subjected to great anxiety from the turbulent disposition of some of the inmates. She has also had much solicitude for the fate of one of her sons, who has been epileptic for two years past. Her life lately, and for several years before, has, however, been one of great bodily activity.

On Monday, Oct. 14th, 1850, "she seemed," says her maid, "as well as ever." She dined, between twelve and one o'clock, on fried fresh pork, and afterwards ate a number of peaches. She was out most of the afternoon; came home at 5 P. M., complaining of cold feet, and sat by the fire for half an hour, talking cheerfully all the time. About $5\frac{1}{2}$ o'clock she suddenly uttered an exclamation of suffering, put her hand to her chest, and started to go up stairs. By the assistance of her maid, she succeeded in reaching the second story, where she staggered, and fell upon the sofa. She writhed, ground her teeth, grasped her clothes as if to tear them from her; and when spoken to, opened her eyes, but did not speak. Her maid left her for some restorative, and when she returned a moment later, found her jaws firmly closed, the remainder of her body entirely relaxed, and no evidence of consciousness.

At 6 P. M. she was seen by a neighbouring physician. He reports that she was in perfect coma, with a slow, irregular pulse; jaws firmly closed,

but her other muscles relaxed; and he noticed that the left eye was more prominent than the right. He gave her a warm bath and a simple enema; a mixture of ipecac. with six or eight grains of tartrate of antimony; applied eight leeches to her temples, and sinapisms to her feet. The enema was retained. An hour after the emetic dose, she vomited several ounces of undigested food—large masses of meat and fruit, which were thrown up into her mouth, and thence removed by the physician. At 9 P. M. the pulse was 80, and she was bled from the arm, to the amount of four ounces, without any effect.

At 10 P. M. I first saw her. She lies in bed, inclined to the left side, her limbs all relaxed and mouth open. The mouth and nose are drawn a little to the left, and the tongue lies partly between the teeth on that side, carried there apparently by its weight. Eyes very nearly closed, motionless; no sensibility evinced on touching them; axes equal. Right pupil contracted, left dilated, both immovable. Respiration regular, stertorous, 36 in a minute, with some rattling. Pulse 94, very hard. Pulsation of carotids very hard, the artery hardly yielding at all between the beats. Skin temperate; no unusual moisture. Does not swallow. A spoonful of water poured into mouth produces much embarrassment to respiration for one or two minutes, and partly runs out of mouth. Ice applied to head; and sinapisms to legs, to be renewed in different parts every two hours.

At 11½ P. M., by advice of Dr. John Ware, patient got an enema of warm water, with ol. terebinth. ℥j; and a mixture was placed upon her tongue of ol. tiglii gtt. v; ol. olivæ ʒj. Ice was discontinued.

Oct. 15*th*, 8¾ A. M. Had two enemata, which were not discharged. Was much the same through night. Urine flowing all night. At 4 A. M. she vomited some pieces of food, which the nurse removed from her mouth. These seemed to be hardly altered by digestion. Since that time she appeared to fail, breathing becoming more oppressed. Now lies as last evening. Skin warm, except nose. Lividity of arms; no other part seen except face. Pulse 140 to 146, feeble. Respiration more rapid than before, somewhat irregular, laboured; cervical muscles acting strongly, and larynx being forcibly raised at each inspiration. The lower part of each conjunctiva is exposed, and considerably injected. The upper limit of this congestion is marked by a straight line produced by the edge of the upper lid. This line runs across the cornea; and that part of the iris which is uncovered by the lid has taken a different colour from the rest. The pupils have somewhat changed, the right one being larger than it was last evening, and the left smaller. While I was standing by her, her respiration became more irregular and laboured, and she appeared to choke. I removed some pieces of food from her mouth, but the respiration did not improve. It became more gasping, and occurred at longer intervals. Her skin, lips, and conjunctiva rapidly blanched; the pulse became nearly imperceptible; the pupils became dilated equally to a very great size, and in five minutes from the decided change in the respiration, she was dead,

without any motion, and without having exhibited any appearance of consciousness or sensibility since her attack, fifteen hours previously.

She died at 9 A. M.

Autopsy, 25 *hours after death.*—Rigor mortis very strong. Posterior parts of body deeply discoloured. Moderate amount of fat under skin.

Head.—About ℥ss of blood flows on the separation of calvarium from dura mater. Longitudinal sinus contains a little blood. Dura mater normal. Arachnoid dry; no fluid underneath it. The large vessels of pia mater full of blood; the small ones less so. The brain preserves its position well. Convolutions on both sides are flattened to a very great degree. The substance of cerebrum is generally of firm consistence, and not very vascular. The lower half of the left hemisphere contains a coagulum, amounting probably to ℥iij. It is contained in a cavity with ragged, soft walls, mottled with blood to the depth of half an inch, and softer than natural, to the depth of nearly an inch; nearly diffluent within, and growing generally harder as the normal portion of the brain is approached. The clot is of uniform dark red colour, and soft except in the centre, where there is a small portion very firm. The thalamus opticus and corpus striatum of this side are partially destroyed by the clot, and the remainder of their substance is soft, but preserves its form. The lateral ventricle of this side is smeared thinly with blood, and in its posterior horn are from one to two drachms of fluid blood, and a free opening into the apoplectic cavity. The right lateral ventricle had been previously opened, and discharged ℥iss or more of clear serum, bloody towards the last. The septum lucidum was partly broken. The fifth ventricle contains a little blood. The third and fourth have none. The plexus choroides are somewhat injected. The ventricles are otherwise normal, except that there is a malformation of the middle commissure: there being two commissures, each one of the usual size, with a space between, which admits a probe. With the exceptions already stated, the brain and the medulla oblongata are perfectly normal. The arteries at the base have a few spots of thickening, but of inconsiderable extent. In taking out the brain, a clot as large as a small pea was observed in or upon the pituitary gland, but it was afterwards forgotten. Portions of the brain, including some of the walls of the apoplectic cavity, were examined under the microscope, but without satisfactory results. No alteration of the vessels was seen, but Dr. Dalton did not consider his examination as conclusive. None of the crystals of hæmatin were found in the clot.

Chest.—There is partial ossification of all the cartilages of the ribs. Pericardium normal, and contains less than ℥ss of serum. Heart firm, rather large. Right cavities contain considerable blood, the left very little; coagulated, uniformly red, and not firmly adherent. The mitral valve, and the aortic valve nearest to it, have several spots of yellowish deposit underneath the lining membrane; not enough, however, to impede their action. The left

ventricle is very firm and hypertrophied. Its thickness is,

At the base, . .	$\frac{11}{16}$ inch =	more than 8 lines.
At the middle, . .	$\frac{11}{16}$ inch =	"
One inch from apex, .	$\frac{1}{2}$ inch =	" 6 lines.*

The remainder of the heart, including parietes, membranes, and valves, appeared normal; but no measurements made. The aorta for two inches from its origin is normal, but is seen no further.

Pleura entirely free from adhesions, and contain very little fluid. The lungs crepitate everywhere; contain considerable fluid; are full of blood at the posterior parts. The apex of each lung is somewhat puckered on the surface, but has no condensation, nor tubercle underneath.

Abdomen.—Peritoneum normal. Stomach and intestines distended with gas. The stomach has a pint or more of fluid and some large masses of peach, with skins. Its mucous membrane is everywhere rough with elevated follicles, white, less than a line in diameter, very numerous and distinct. No unusual vascularity, no thinning of the mucous membrane; but a moderate degree of softening at the left extremity. The small intestines contain, besides gas, many solid masses. They were opened in only one place, to discover the nature of the contents, which proved to be fecal. The lacteals cannot be discovered, except at two or three spots, where a drop of chyle serves to display half an inch of their length. Mesenteric glands normal.

Liver normal. Gall bladder half full of bile; no concretions. There are some old adhesions of areolar tissue between the gall-bladder and the transverse colon. No communication between their cavities.

Pancreas normal, but rather small.

Spleen quite small, pale, and dry. It has a cyst under investing membrane, containing ℥ss of clear fluid. In the lower wall of the cyst, which is thicker than the outer one, is a small extravasation.

Kidneys thin; left larger than the right; nothing abnormal about them, except a cyst under investing membrane of the left, containing ℥j of serum. Ureters normal. Bladder normal; contains about ℥j of urine.

Ovaries of natural appearance, containing together eight corpora lutea of different sizes, the smallest being a yellowish spot, no more than a line in diameter; and the largest nearly half an inch in diameter, with yellowish walls, containing a red clot. There are also two large Graafian vesicles in the left ovary, quite prominent, one of them covered only with peritoneum.

* The average thickness of the left ventricle in the healthy female, according to Bizot, is,

At the base, ...	about $4\frac{1}{3}$ (English) lines.
At the middle, ...	about $4\frac{1}{2}$ "
Half an inch from apex, . .	about $3\frac{1}{2}$ "

My third measurement cannot be compared with Bizot's, as it was made half an inch farther from the apex. The others show a thickness nearly double that of the normal standard.

The uterus is quite large, being 3½ inches in length, and 2¼ inches in breadth. Its walls are thick in proportion, but natural in texture. Its internal surface rather pale, quite soft, and for the depth of two lines consisting mostly of epithelium.

Remarks.—In reviewing the case, the idea occurs that, although the attack was severe, death was *insured* by the administration of an emetic, a mode of treatment that was once practiced, but which received the condemnation of Morgagni more than a century ago.

Blood-letting has within a few years been looked upon as a treatment of doubtful efficacy. When used, the established practice has been to employ it very freely, or until a decided effect has been produced upon the system; small bleedings, according to Abercrombie, doing more harm than good. Taking the recorded cases, and what I have seen for a criterion, it appears very doubtful whether patients have recovered more readily under the use of blood-letting than when it was not used.

In addition to this case, I will present a synopsis of four cases which occurred at the Massachusetts General Hospital; these being all the cases in the hospital records which are accompanied with post-mortem examinations.

In every case, there was a sudden but partial loss of consciousness, and perfect or partial hemiplegia. In every case there had been premonitory symptoms, consisting of dejection of spirits, vertigo, headache, momentary loss of consciousness, drowsiness, incoherence, or temporary numbness. These symptoms had occurred in two cases, only three or four days before the apoplectic seizure; in the other two from three to six weeks previously; but were not continual in any. In all the cases, the patient could be roused at any time, until within a few hours of death. The length of time from the attack until death was two and a half, four, nine, and twelve days, respectively; and death occurred without convulsion.

In the character of the lesions, there was a remarkable correspondence in the four cases. In all, there was very great extravasation of blood (from ℥iss to ℥iij) into one cerebral hemisphere, involving the thalamus opticus and the corpus striatum, or one or the other alone; and in three of them bursting into the lateral ventricle. In every case there were softening and staining of the surrounding medullary matter; in three cases, to the depth of a few lines; in the fourth, nearly to the surface of the cerebrum.

All the subjects had more or less ossification of the aorta, the falx cerebri, or the cartilages of the larynx and ribs. None had any ossification of the cerebral arteries. In the youngest subject (æt. 40), there was advanced ossification of the anterior part of the falx cerebri, but none anywhere else.

Three had marked hypertrophy of the left ventricle of the heart. These were 63, 69, and 70 years old, respectively. The heart of the fourth (æt. 40) was normal in every way. This patient had a strong hereditary predisposition to the disease, his mother and two uncles having died of "palsy." No statement was made in regard to the family history of the others.

Before going any further, I wish to call attention to the want of agreement

in the case first related and the last four cases. In all of them, the lesions were nearly equal in extent and of almost precisely similar situation; yet the first case was one of complete coma from the outset, and death occurred in fifteen hours; while the remainder were never attended with total unconsciousness until a few hours before death, and were of much longer duration. That so great a difference is due to a certain cause cannot be doubted; a cause, however, which does not give any evidence of its existence that is appreciable in our anatomical investigations. The autopsy of the case reported does not justify us in thinking that it arose from greater suddenness in the effusion than occurred in the hospital cases; for there was pretty good evidence that the effusion did not all occur at once, the centre of the clot being notably firmer in a well-limited portion than that which surrounded it—a fact which was not noticed in the hospital cases. The differences illustrate the statement which Abercrombie makes: that there is no constant correspondence between the extent of the injury received by the brain and the symptoms which attended it—an opinion confirmed by Andral's cases. It is not to be forgotten that here, as in many other diseases, the lesions which are evident to our senses are not all the pathological changes that take place: if we should neglect to take into consideration the functional disturbances which a slight lesion may produce, many of our discoveries after death would appear quite insufficient for the production of the symptoms which brought about the fatal issue.

Andral, in his *Clinique Médicale,* reports seventeen cases of apoplexy, in all of which the state of the brain around the clot is described. In five old cases in which the clot had been surrounded by a membrane, and partly or wholly absorbed, the brain around the cyst was either of normal consistence or somewhat hardened. There was only one other case of sufficiently long standing for the production of a cyst; this was of six months' duration, and presented an organized membrane, with softening of the circumjacent substance for a depth of four or five lines. But the softening in this case was clearly of secondary occurrence, as appeared by the symptoms three months after the apoplectic seizure (Case 7). The cyst was formed in all the cases but one, in which the attack dated more than a year previously, and in one case of six weeks' standing; and in the case (of thirteen months' duration) in which there was no cyst, the surrounding brain was still soft, while the hemiplegia was subsiding, and death was produced by tubercular disease (Case 10).

In seven cases, there was softening of the brain around the clot to a depth varying from two to six lines in the different cases.

In four cases there was no softening around the clot. Two of these had only very slight effusions, being from two to four lines in diameter. One had a clot as large as a small nut, and one as large as a pullet's egg. In all of these, death took place within nine days from the attack.

In eleven cases of apoplexy with extravasation, related by Abercrombie,

the condition of the brain surrounding the clot is mentioned in three only. In these it is described as softened and broken down around the apoplectic cavity. In two of them, the attack was entirely without premonitory symptoms. In the third, there had been headache for several days.

Taking, therefore, our thirty-three cases, we find sixteen in which the cerebral substance around the clot is described as softened. Eight of the remainder had no account of the consistence of the brain. The five cases in which the attack took place at a long period before death may be fairly excluded from the list, on account of the change which probably occurred in the interval. Four cases only remain, in which the brain was of healthy consistence.

In consideration of these results, I think it may be safely stated that the portion of the brain which forms the parietes of apoplectic cavities is almost invariably softened and broken down.

Attention is called to this point, for the purpose of inquiring what is the probable condition of the brain before the apoplectic attack? Can it be, as some writers have supposed, that the softening is a condition of earlier date than the extravasation? That the premonitory symptoms, which in some of these cases have existed for several months, are indications of this state of the brain?* If so, how are we to dispose of the cases in which we find the same degree of softening, but in which the apoplectic symptoms occurred during apparent health, of which I have presented some cases, unless we can show that softening may exist to a very great extent, involving even the thalami optici and corpora striata, without producing any symptoms? And, on the other hand, we have many cases of fatal softening of the brain, sometimes even to diffluence, and some of them of long standing, in which no hemorrhage took place. It seems most probable that whatever cause may operate, in ordinary cases of apoplexy, to produce the extravasation of blood, it is *not softening of the medullary substance;* but that this is produced by the violence of the effusion. This view is taken by Dr. Craigie, and perhaps by other writers. In this opinion, it will be understood that inflammatory softening is not included; the extravasations which occur in cases of that kind being usually limited to a small part of the softened portion, thereby indicating a different cause for the effusion. It will be observed that, in all the cases but one to which I have referred, the softening has been of nearly the same depth, hardly exceeding six lines around the clot, and being uniform in degree and depth on all sides of it. I have found, as has been already said, four exceptions to what appears to be the usual condition around the clot, four cases in which there was no softening, indicating that the effusion does not always produce mechanical injury of the brain around it. In three

* Among all the symptoms which have preceded apoplectic attacks, I find no case where there were *muscular contractions*, a symptom which occurs in more than half the cases of simple softening of the brain.

of them, the clot was very small (2, 4, and 8 lines in diameter, respectively), which may be a sufficient reason for its absence, inasmuch as there are no cases which presented softening around the clot, in which the clot was so small as in two of them. In the fourth case, however, the effused blood was as large as a pullet's egg, a size which does not admit of the same explanation.

The consideration of the possible causes of apoplexy gives me an opportunity to allude to some very interesting observations on the condition of the minute vessels of the brain, in cases of this disease. They are published in the "London Medical Gazette" for February, 1850, by Mr. Paget, who has found these vessels to undergo a fatty degeneration. He says, "In the last degrees of the disease, the only apparent change of structure is that minute, shining, black-edged particles, like molecules of oil, are thinly and irregularly scattered beneath the outer surface of the small blood-vessels of the brain. . . . . As the disease makes progress, the oil particles may increase in number, till the whole extent of the affected vessel is thick-set with them, and the natural structures, even if not wasted, can hardly be discerned. . . . . The vessels most liable to this disease are, I think, the arteries of about $\frac{1}{300}$th of an inch in diameter; but it exists, at the same time, in the veins of the same or of less size. . . . . It is not rare, however, to find vessels from $\frac{1}{2000}$th to $\frac{1}{3000}$th of an inch in diameter, having part of their walls nearly covered with the abnormal deposits. . . . . The fibrous coat of arteries, and the corresponding layer in veins, is the principal and first seat of the deposit; but in an advanced stage, it is seldom that any of the several coats of a blood-vessel can be assigned as its chief seat; for even in large four-coated arteries they wholly waste, and their remains appear united in a single pellucid layer, of which the whole thickness may be occupied by the deposit. . . . . The fatty degeneration affects alike the vessels of the healthy, the broken and the softened portions of the brain; but the vessels of the healthy portions are affected in a less degree than those of the others." He further says, in his examination of one of the cases, that "several portions of yellow fatty deposit existed in the walls of the branches of the arterial circle of Willis." In the case first reported in this paper, there was a deposit in the arteries at the base of the brain, apparently similar in character to this mentioned by Mr. Paget; but it was not placed under the microscope.

Although Mr. Paget's observations have not been very numerous, he is induced to say that "this fatty degeneration of the blood-vessels of the brain may be suspected to be the ordinary precursor, or even the immediate predisposing cause, of cerebral apoplexy."

Case II.—*Cerebritis (Inflammatory Softening, with Effusion of Blood); Caries of Hip-Joint after Dislocation; Tuberculosis.*—A seaman, æt. 35, while suffering with rheumatism, as he reported, but able to walk about, in the middle of August, 1850, fell a few feet, striking the middle of left thigh against a box, as he thought. He was under treatment for the first time

about two weeks after the injury, at the Chelsea Marine Hospital. Dr. Ingalls found him, on the 2d of September, to have the left limb two inches longer than the other, and the foot and knee carried forward outward in standing. The diagnosis was of dislocation into the foramen ovale. Reduction was then attempted, and was partially successful, the difference in the length of the limbs being considerably diminished. The patient has, however, been unable to use the limb, having been confined to his bed from that time. For some time past, has been obliged to have his shoulders much raised, on account of severe pain in the hip-joint, which was aggravated by the horizontal posture. He has also suffered considerable dyspnœa, which has increased the difficulty of lying down. Has had a little cough, with very slight expectoration.

Two weeks before death, began to lose the use of right arm, and soon afterwards the right leg was in the same condition. At the same time, he appeared stupid, but made no complaint of head, and special senses were not particularly affected. Five days before death, his stupor became much greater, so that, although he could be roused, he did not comprehend anything that was said to him. His left side became paralyzed; he grew steadily worse; and for the last three days of life he was perfectly comatose, with involuntary discharges of urine and feces. His pupils were then much dilated, but there was no strabismus nor other alterations of eyes. On the last day of life, there were frequent convulsions of right arm and leg; and for the three days before death there was frequent forcible contraction of upper lip. Death occurred three and a half months after the dislocation.

Autopsy, 25 *hours after death*, November 30, 1850—Thermometer 40° to 45° Fahr. Moderate emaciation. Œdema of left foot and leg, and of right in a much less degree.

Head. Scalp absolutely bloodless. Dura mater normal. Arachnoid has a little serum underneath it, on each hemisphere; on the right it has slightly opaque spots; on the left over the vertex, there is a considerable deposit of lymph underneath it, extending from the longitudinal fissure outwards about two inches, and from before backwards about three inches. This fills up the sulci of the convolutions, gluing them together. The pia mater on the perpendicular face of this hemisphere in the longitudinal fissure has a similar effusion of lymph, and the opposite hemisphere, where it lies against this, has a slight effusion under arachnoid, but not extending between convolutions. The condition of the falx was not examined. In attempting to raise the arachnoid and pia mater on the left side, it separates pretty readily—the lymph being soft—except at one spot near the median line, where a little of the cerebral substance comes away with it, on account of being very soft. A transverse incision through left hemisphere, taking off a slice half an inch in thickness, displays (just where the brain was torn up) a reddish-brown mass three-quarters of an inch in diameter, surrounded with deep red, and that again with yellowish-white, dotted with deep red points. This portion is very

soft, the brown being so soft that a gentle stream of water would probably wash it away, but grows less soft on reaching the red. Just anterior to this is another focus of deep red points, forming in the centre a cluster of pure red, gradually disappearing in single points at the circumference. Around both these foci the brain is of a light orange colour, gradually fading into the white. The whole of the yellow and red is soft, but much less so than the brownish portion. The posterior brownish mass extends with the same characteristics for about an inch downwards, then becomes red, then yellowish with red points, until at the surface of the lateral ventricle it is pure yellowish, and more soft than natural. The anterior red portion does not extend so deep. The cortical portion in that part of the brain which is softened is very pale; near the central part of the diseased structure it is hardly any darker than the medullary portion, and can be seen only for the thickness of half a line. Although quite distinct elsewhere, it is not in either hemisphere so dark as natural. The left lateral ventricle is of normal consistence and appearance, except at the small spot already described in its upper wall; it contains less than ℥j of serum. The remainder of the left hemisphere, and the whole of the right, are normal. Commissura mollis firm. The right lateral ventricle has less than ℥j of serum. Except over the convexity of left hemisphere and in longitudinal fissure, the membranes are normal and free from lymph and serum. No pus anywhere. The diseased portion of the brain with the effused blood, examined under the microscope by Dr. Dalton, showed blood-globules in considerable abundance; portions of broken-up nerve tubes; translucent, highly refracting, claret-coloured, irregularly-shaped, crystalline masses of small size (hæmatin).

Chest.—The whole of left lung and the upper half of the right nearly filled with a grayish tubercular deposit, with several small cavities in each upper lobe; no pus. The pleura almost universally adherent by old membranes. The pericardium contained nearly ℥iv of serum. The heart flabby; was removed entire for preservation.

Abdomen.—Stomach normal. Intestines apparently so; but were not opened, for want of time.

The liver is of a uniform bronze colour (as in remittent fever), but not softened.* Spleen about twice the natural size, dark and soft.

Kidneys normal.

Hip.—There is phlebitis of the left vena profunda femoris, from the femoral vein downward about seven inches—traced no further. Immediately over left hip-joint, there is a sac about the size of the forefinger, with a thick lining containing yellowish, broken-down lymph, with a little purulent matter. On its posterior side is a small opening into the joint. On opening the joint

* Since patient's death, I have learned that his voyages, during the few months immediately before his attack, were between Liverpool and Boston. Whether he had had fever, I cannot learn.

the head of the femur is found directed forward, and the trochanter major directly backwards, from the laxity of the ligamentum teres (this being about one and a quarter inches long). The synovial membrane has a coating of lymph, varying in thickness from that of a serous membrane to masses of several lines; down upon the neck there are large loose bands attaching the opposite surfaces. That which covers the articular cartilages, has very little lymph. The cartilage over the head of the bone, has several depressions, like cicatrices; and one ridge two or three lines high, as if from effusion underneath. The ligamentum teres is firm, but surrounded with lymph, underneath which there is deep congestion, and particularly at its attachment to the acetabulum, from which it can be easily separated. The articular cartilages are very easily torn off, bringing minute spiculæ of bone with them, leaving the surface red, rough and soft—so soft that it can be cut with the finger nail. No pus nor synovia in cavity of joint.

Case III. *Simple Softening (Ramollissement) of the Brain.*—J. P. æt. 68, a thin man, of sallow complexion, had been in active life to the age of fifty, acting chiefly as supercargo or in some similar capacity in the East India trade. About eighteen years ago, he studied theology, and was settled as a minister in Ashfield, Mass. About 1845, he considered himself incapacitated for further service, on account of feeble health, and has since resided in or near Boston, a pensioner of the Episcopal Church.

He was first seen by me in the autumn of 1847, when I admitted him to the Mass. General Hospital, on account of chronic ulcers on the shin. His manner of living at that time undoubtedly influenced his health injuriously. He was shut up in a small room warmed by an air-tight stove, and rarely went out. He spent most of his time in bed; took only one meal a day, which consisted chiefly of bread and tea or cocoa. He rarely saw any one, having few friends in the neighbourhood; and he appeared like a superannuated man who took no interest in anything but his leg. His circulation was very sluggish, and the leg was attacked with occasional congestions, sometimes resulting in sloughs. He left the hospital after six months, with his leg quite well, and with much more vigour than he had had for two years before. He took lodgings in the city, and until the last six months, has been in the habit of walking out, sometimes a mile or two at once. He has been frequently troubled with dyspepsia. He has had ulcers on one or the other leg at times; but they have pretty readily healed. For eight or nine months past, he has had an ulcer on left leg, with hardly any intermission. He has treated it himself, with water, warm and cold, poultices, simple cerate, &c. For several months he has not left the house.

Two weeks ago, the landlady began to perceive that his leg was offensive, and since that time he has not left his chamber, and has spent the nights in his chair (the landlady thinks, for fear he should not rise again if he went

to bed). I have not seen him for many weeks. The housekeeper states that he always eats enormously and of a great variety of articles, particularly a large quantity of butter. That he was in the habit of getting some exercise by pumping water for fifteen minutes daily until the last two weeks; that since that time, although this daily exercise and all other has been discontinued, he has eaten as heartily as ever.

The housekeeper spent part of the last evening with him, when he appeared unusually well and cheerful.

This morning, *August 10th*, 1850, the maid went into his room between seven and eight o'clock, and found him nearly insensible in his chair. She spoke to him, when he turned his head towards her and uttered some unintelligible sound, upon which she called her mistress, who found him quite insensible.

I reached the house at 8 A. M. and found Mr. P. sitting in an arm chair, with head back, his feet upon another chair, his left knee drawn up and resting on a pillow, his right hand grasping the arm of the chair, his left hand also somewhat contracted. Eyes closed; pupils very much contracted and not affected by light. Respiration natural. Pulse rapid, very full and like a hammer. On being spoken to, opens eyes for a moment, but shows no other sign of intelligence. Being obliged to go away immediately, I left him in charge of Dr. Williams, with the request that he would apply ice to his head and hot bottles to his feet, and take blood from his arm p. r. n.

At 9½ A. M., I saw him again. He had lost ℥viij of blood, when the bleeding was stopped, as there was some improvement in his appearance—both increase of intelligence and softening of the pulse. Considering the age and debility of the patient, Dr. Williams preferred not to bleed any more. Pulse now less hard and full, 110. Pupils same. Skin warm and moist, except of lower extremities. Exhibits more intelligence on being spoken to, grasps my hand slightly, opens his eyes and shakes his head a little. Soon after being roused, falls into stupor, with slightly stertorous breathing, and lower jaw falls; but on being again aroused, closes mouth, partly opens eyes and breathes quietly. There is no distortion of face. Arms not paralyzed; sometimes raises one of them when flies are on his face. Swallows a part of liquid which is put into his mouth.

1 P. M. Much the same. Pulse 103. Occasional twitching of flexors of fingers.

5 P. M. Has lost ground. Lies as before. Pulse 110, same character. Pupils same. Skin warm and moist, greasy in feeling. Inspirations regular, somewhat spasmodic. Starts and opens eyes a little, when addressed in a loud voice, but immediately relapses into unconsciousness. We lifted him on to the bed, and being able to examine him more thoroughly, find rigid contraction of the flexors of his forearms and hands—his forearms forming an angle of about 75° with his arms, and his fingers being closed. His head was drawn rigidly backwards. The right thigh was nearly straight; the left

thigh and leg were much flexed (this was a position apparently assumed last night for ease to the lame leg). The lower extremity was extended by steady force, and remained so, but with continued rigidity of muscles. Respiration in front noisy, by sound apparently transmitted from throat—with some roughness, as if from mucus. No distinct râle. There is no impulse felt over heart and the sounds are indistinct.

11*th.* Has not aroused, and cannot now be affected by any stimulus, either of voice or touch. Respiration 11, irregular in rate and force: most of inspiration being full and stertorous, with occasionally some very slight and quiet. Left leg drawn up as at first, and when extended soon returns. Ulcer examined, and found to be enlarged by a slough, not yet separated, which is very offensive. Ulcer may be washed with liq. sodæ chlorinatæ dilutus.

12*th.* As yesterday. Violent twitching of left leg followed the wash. Pulse 110, in character as before. The left pupil has become dilated to the natural size; the right remains contracted. They are immovable, and the eyes are not affected by the touch; the conjunctivæ are covered with mucus. Occasionally slight twitching of eyelids. Does not swallow.

Evening. Pulse much smaller, 132. Respiration as before. Occasionally groans and closes jaws for a moment. Has not aroused at all. Left pupil has become unnaturally large. Right pupil nearly as before.

He continued to sink, and died at ten minutes before 11 P. M., without convulsions. He had no dejection after his attack. It was not known that he had passed any urine. His skin had been covered from the first, with viscid sweat.

Autopsy, 11 *hours after death.*—The lower extremities are moderately rigid. The upper have been moved. Moderate emaciation of body generally, but over abdomen there is more than an inch of fat. Muscles of pretty good colour.

Head.—Scalp quite bloodless. On raising calvarium, ℥ij to iij of fluid escapes, apparently from openings made in the membranes by the saw. Longitudinal sinus empty. Dura mater and arachnoid normal, but pia mater infiltrated with serum, which raises arachnoid to a great degree. Convolutions of cerebrum are thin and separated, and on the right side near the median line is a depression large enough to hold a filbert. Two ounces of fluid were caught here, and ℥iss more at the base, which, with that which escaped at the removal of the calvarium, amount to at least ℥vss under the arachnoid. The lateral ventricles contained ℥iss more. The substance of brain is unusually vascular, but of good consistence and normal appearance, except in the left corpus striatum. A considerable part of this with the medullary matter next to it on the outerside, is decidedly softened. It is not diffluent. There is no alteration of color or effusion of blood. In the midst of the softened portion is a small cavity, two lines in diameter, without lining membrane or alteration of colour. It may have held serum, but as soon as it came to view was empty. It looks as if it were just now scooped out of

the substance of the brain. The softening extends through the corpus striatum from top to bottom; in a transverse section is seen only in the outer half and extending a little way into the hemisphere; and in a vertical section from the anterior to the posterior part, is seen chiefly in the middle of the corpus striatum. Every portion of cerebrum and cerebellum were carefully examined, and nothing else abnormal found. The vertebral and basilar arteries are thickened and rigid in several portions; the whole of the vertebral from the points where they enter the spinal canal are more rigid than usual, not collapsing at all; but no ossific matter is seen. No lymph or pus in any part of cranial cavity.

Chest.—The heart is normal in every respect. Aorta smooth and free from disease for seven inches from heart. Not examined further.

The thymus gland is large enough to weigh an ounce, and of natural appearance.

The lungs contain much fluid, most at posterior part. At the right apex there is an old empty cavity as large as a hen's egg; and at the left apex tubercular remains. No tubercles, nor other alteration. There are old pleural adhesions, chiefly on right side. Little fluid in pleura or in pericardium.

Abdomen.—Peritoneum normal. Stomach contains half a pint of fluid, and some currants; is not unnatural. Intestines appear well externally; not opened. Mesenteric glands normal. Pancreas not examined.

Liver rather small; full of blood; not abnormal. Spleen rather large, normal, except for a thick white appearance of part of the capsule.

Kidneys loaded with fat to an unusual degree. Both very small, by atrophy of the cortical portion. The surface of the right kidney is irregularly nodulated, the elevations being small, with a somewhat granular appearance, and deeply injected everywhere. From one part of the surface rises very abruptly a portion as large as a dime, about two or three lines above the rest of the kidney, and looking like a fungus. This is softer than the rest of the organ, and can be easily scraped out with the scalpel to the depth of half an inch. Its colour is the same as that of the rest of the kidney, which is a deep red. The left kidney is like the right, but less injection. Both of them are of natural consistence.

Under the microscope, examined by Dr. Dalton, the projecting soft portion appears natural, showing extremities of tubuli, with epithelium of normal size and no unusual structure; but the rest of the kidney appears to have its tissues much contracted, and its epithelium is small.

Bladder contains ℥ij to iij of urine; not opened.

The three cases here presented illustrate clearly the pathological difference between the softening of the brain, which takes place around an apoplectic effusion, and that which occurs under other circumstances.

ART. VI.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

Jan. 27.—*Ulceration of the Cœcum.* Dr. STORER reported the case.—Early in December last, Dr. S. was called to visit Miss L., aged about twenty-five years. She complained of great pain in the right iliac fossa, and was suffering from considerable constitutional excitement:—Upon examining the part affected, he found it tumefied from about two inches anterior to the crest of the ilium, to some distance backward upon its spine; this tumefaction was exceedingly sensitive, and pressure upon a portion of it detected fluctuation. Dr. S. ascertained that she had taken a long walk a week or two previously, when the ground was damp, with thin shoes—and, that at that time she felt chilled;—immediately after this exposure, she began to complain of uneasiness in the affected part, and her suffering had, since, constantly increased. The abscess was punctured, and egress given to several ounces of exceedingly offensive, ill-conditioned pus, together with a small portion of air: great relief was immediately experienced. The purulent matter continued to flow, unmixed with any foreign substance, until the third day after the opening was made. At this time, Dr. Storer noticed three or four small black masses about the size of an ordinary pea, looking like little scybala, and the patient told him, that during the previous night she had been disturbed by the passage of air from the orifice. On the fourth day, liquid fecal matter flowed freely from the wound—this continued four or five days, requiring that dressings should be applied repeatedly during the day. From this period, nearly five weeks elapsed without the passage of any fecal matter, the discharge being entirely purulent, accompanied occasionally by air. At the termination of a month, the patient, having complained for a day or two of local heat and fulness, together with general febrile excitement, observed in the purulent discharge from the wound, quite a number of fig-seeds, which had been swallowed a fortnight previously. Succeeding the passage of these seeds, a long, somewhat compressed substance was observed in the aperture of the skin, which proved to be a portion of apple-peel, several folds of which had become rolled upon themselves, forming a fine, pointed body. Fecal matter followed these foreign substances, and continued to flow for four days, and then gradually subsided.

March 10*th.*—No fecal matter has passed during the last seven weeks—air has, however, repeatedly, until the last week;—the bowels are regular, and her general health much better than it was previous to the formation of the abscess; a slight purulent discharge alone continues to flow.

Dr. J. B. S. JACKSON asked, if tuphlo-enteritis had been suspected as the cause of the phenomena in the above case? Scybala had been discharged, at first, from the wound, and it is known that these have sometimes been the cause of inflammation, &c., in the appendix cœci.

Dr. STORER replied, that the discharge of fecal matter from the wound had been *profuse*—he did not refer the case to tuphlo-enteritis.

Jan. 27.—*Application of Collodion as a preventive of Pitting, in Variola, and its use in cases of Mammary Inflammation.*—Dr. STORER remarked that he had used collodion in one case, within a short period, successfully. The patient was very ill with small-pox; upon the appearance of the pustules, those upon the face were brushed over, two or three times daily, with the above liquid, until the period of desquamation. The patient, upon recovery, exhibited no pits upon her face.

Dr. S. observed that, Professor Evans, of the Rush Medical College, had reported several cases, during the past year, in one of the Western Journals, in which he used collodion, advantageously, in *mammary inflammation;* suppuration was prevented in most of the cases, and relief obtained in all. His object in applying this remedy, was to obtain a contraction of the parts; supposing that thus, the freedom with which the blood is forced into the mamma, would be overcome, and the lymph absorbed by compression.

Dr. S. had tried Prof. E.'s plan in three cases, but had not observed any decided effect from the application; he is unwilling, however, to venture an opinion upon its value, without further experience.

Dr. BOWDITCH testified to the efficacy of collodion in the prevention of pitting from variola.

Dr. ABBOT supposed it to act by its *constrictive* property, compressing the blood-vessels around the pustules, and thus diminishing the formation of pus. With this view, he had applied it, in his own person, in threatened paronychia, with success, the inflammation being completely arrested.

Dr. BOWDITCH, referring to the apparent effect of *pressure* in preventing inflammation, mentioned a case of peritonitis, where the pressure made by the intestines upon each other seemed to arrest the diseased action, no inflammatory blush being observed between the intestinal convolutions.

In another case, where the *liver* had pressed upon the *stomach*, the portion of the latter viscus thus situated was quite *white* and entirely uninflamed, while the rest was much affected.

Dr. JACKSON said he had often noticed similar facts, but had never, previously, thus accounted for them. He thought the effect of compression evident.

February 10.—*Loss of the Power of Articulation.*—Dr. BIGELOW, Senior, related the following cases:—A female who had amenorrhœa, suddenly lost the power of articulating words; she could protrude the tongue and utter sounds, and even sing a tune, but, for more than a week, made no articulate sound. At the end of two weeks, by strongly fixing the attention, she could utter some words; even now, she speaks but slowly. Dr. B. considers the affection, in the above case, analogous to *stammering*, and wholly nervous.

The other case mentioned, was that of a man about thirty years of age, who came to the Massachusetts General Hospital, complaining of pain in the lumbar region, extending to the right hip and thigh, resembling sciatica. Large doses of aconite and colchicum relieved the pain, and the patient seemed convalescent. Catarrh, with slight febrile disturbance, ensued. About one week since, he suddenly lost the power of articulation, during the night; in the morning, on being questioned, he was unable to reply; he could protrude the tongue, and motion of other muscular parts was preserved. On the following day, difficulty of moving the hands and arms came on; at present, the hands are nearly immovable; the legs movable; he has vertigo, tinnitus aurium, and imperfect vision. In this case, Dr. B. apprehends more serious, and cerebral, difficulty. Dr. B. had previously reported to the Society the administration, by mistake of a nurse, of an over-dose of the tincture of aconite to this same patient; the *strong* tincture having been given in place of the *weak*, which was ordered. Nausea, dizziness, numbness, dryness of the fauces, loss of muscular power and of vision, followed its use, in the dose of six drops.*

Dr. Shattuck, Jr., stated the case of an apothecary connected with M. Louis' Hospital, in Paris, who lost the power of articulation after taking Cannabis Indica; the inability continued for four days; he then recovered the power of speech as suddenly as he had lost it.

Dr. Coale mentioned a case of *embarrassed* articulation, occurring in a gentleman whom he supposed affected with intestinal obstruction; the patient was *hysterically* seized at times; violent convulsive movements occurring; strong spasm of the lingual muscles caused the tip of the tongue to turn upwards at right angles whenever he attempted to speak. Dr. C., regarding the affection as a purely nervous one, directed the patient to apply undiluted brandy to the tip of the tongue, on the access of the spasm—the brandy being applied by the patient's finger, he holding a wineglassful of it in his hand whenever he wished to speak, as not more than a dozen or two dozen words could be spoken without the occurrence of the lingual spasm, which was promptly arrested by this treatment. The affection lasted for thirty-six hours.

February 10.—*Case of Colic strongly simulating Pleurisy.*—Dr. Coale was called out of town at midnight to see an elderly lady who had been seized early in the previous afternoon with a chilliness and a pain in the side and upper part of the chest. Several domestic remedies—hot cloths, a "rum sweat," and hot drinks—had been used, but the pain increased until it was insupportable. Though a woman of much power of endurance and of self-resolution, her groans could be heard all over the house. She was found propped up in bed, inclined to the right side. The countenance expressed anxiety; groans con-

* This patient died with general paralysis a few days afterwards. No autopsy allowed.

tinual; respiration 40 in the minute; pulse 80. The pain was referred to the seventh rib on the right, and running thence to the shoulder of that side and to the infra-clavicular depression. The mention of habitual constipation gave Dr. C. a suggestion that the affection might be caused by flatulence, more particularly as the pulse did not seem excited proportionably to such intense pain. Some castor oil was given, followed up by rhubarb; and there being no syringe at hand, a soap suppository was introduced into the rectum, an hour after the administration of the oil. Free stools, accompanied by much gas, soon testified to the correctness of the diagnosis, and gave relief to the patient. The notable points in this case are the total want of any symptom directly referable to the bowels, and the intense pain so high in the chest as the infra-clavicular fossa.

Feb. 24.—*Fractured Vertebræ.* Dr. S. D. Townsend showed the specimens.—The fourth dorsal vertebra fractured through its body, and also the spinous processes of the three next below it. The patient, from whom these were taken, received a blow from a "derrick," which first struck the *head*, then the *back*. He was instantly paralyzed from the diaphragm downwards. He lived seventeen days; a slough formed over the sacrum about the tenth day.

Feb. 24.—*Intra-Capsular Fracture of the Cervix Femoris. Death from Intestinal Strangulation.* Dr. J. M. Warren related the case.—A gentleman, 83 years of age, fell upon a carpeted floor, striking the right trochanter. He was taken up suffering severe pain. Foot everted and shortened half an inch. He was placed on the triple inclined plane, the foot supported by means of pillows and protected by a cradle. At the end of seven weeks he was able to move the leg without pain, and the foot was not disposed to evert. On the 30th of January he was seized with a pain in epigastrium, accompanied by vomiting. Pain relieved on 31st, but the vomiting continued at intervals until his death, which occurred on the 4th of February. During this period there was no pain on pressure over any part of the abdomen, and no tumour perceived. One evacuation, of a solid consistence, took place from the bowels, by means of enema, on the 2d of February. The urine was suppressed for 24 hours; afterwards, it was passed naturally.

On examination after death it was discovered that about eighteen inches of the ileum, in the neighbourhood of the cœcum, had passed through an aperture in the circumference of the omentum, apparently made by an old adhesion; all this portion of the intestine was black, but not in a state of gangrene, the strangulation being partial. The capsule of the hip joint being opened there issued a small quantity of dark-coloured blood. A fracture was at once seen passing transversely through the neck of the bone; the parts, however, were firmly interlocked, and it was only after efforts of forcible rotation were made that they partially separated. A portion of the

periosteum, at the back part of the cervix, remained entire. The effects of the fracture were to produce a slight shortening of the neck of the bone, by the fragments being driven, as it were, one into the other, and an additional shortness of the limb, from the partial drawing up of the shaft of the bone, by muscular contraction.

Feb. 24.—*Testicle retained in the Groin. Extirpation.* Dr. J. M. Warren showed the specimen.—The patient was 38 years old, and a small tumour had always been observed high up in the groin, which, from the absence of the testicle in the scrotum, was supposed to be that organ arrested in its descent. A year since, the tumour suddenly slipped farther down in the course of the inguinal canal, enlarged, and became painful, the pain extending into the abdomen, when the tumour was handled. On removal, the testicle was found in a disorganized state, enveloped in the tunica vaginalis, which was partially adherent to it.

Feb. 24.—*Rupture of the Uterus.*—Dr. Cabot reported the following case: E. S., about twenty-seven years of age, of light complexion and hair, good general health, and apparently well-proportioned, the mother of one child, born six and a half years ago, and which child, a male, weighed at birth eight pounds, was taken with labour-pains at twelve M., Feb. 18, which pains increased in strength until Dr. C. visited her, at ten and a half P. M. At that time the os uteri was dilated to the size of a dollar and was yielding; the bag of waters quite prominent; at eleven and a half P. M. the latter broke; about the usual quantity of liquor amnii was discharged; os uteri dilated to about thrice the size remarked on first examination. The head advanced under action of very violent pains, until it almost pressed upon the perineum. After one o'clock A. M., Feb. 19th, the head did not advance much, if at all, although the pains continued very violent, straining and expulsive, even when the patient was well under the influence of ether, of which, during the labour, she consumed ℥xx. The pains recurred at about five minute intervals. At about eight A. M., Dr. Storer came in to relieve Dr. Cabot for a time; there was no return of the pains after his arrival, but vomiting of a greenish fluid occurred, and, on examination, Dr. S. found a *knee* projecting directly beneath the abdominal integuments, in the vicinity of the fundus uteri. Patient's pulse small and fluttering; too frequent to be counted: previously, even while fully etherized, the pulse had been full and strong. Dr. Storer went for instruments, being confident that rupture of the uterus had taken place. On Dr. Cabot's return the perforator was applied to the child's head, which did *not* (as is usual in these cases) *recede*, previous to the application of the instrument, or at the moment of its application. The perforator was introduced with ease; forceps could not be used. The child (a female weighing seven pounds, exclusive of the brain) was extracted with great difficulty; the placenta followed immediately; the uterus contracted firmly

and well, feeling hard and rounded under the hand, as usual after normal delivery. Opium and brandy were administered. At twelve o'clock M., patient complained of great pain in the abdomen; pulse too small and quick to be counted; countenance sunken; breathing very short and quick. Brandy and opium continued. 20th, has been quite free from pain since last evening, and has not taken opium since then. At six P. M., the pulse 135 and fuller; the catheter was used. 21st, pulse 115, fuller; nausea and vomiting; pain in abdomen, but no great tenderness; lochia sufficient, not excessive from the first. Catheterism; ordered calomel and opium. 22d, pulse 104, patient comfortable till towards night, when the lochia diminished; pulse 125; abdomen tender on pressure. Next day, pulse higher and tenderness of abdomen more marked. Calomel and morphia were administered, nearly every hour, until two A. M., Feb. 24th, when patient became perfectly easy, slept, and, on being waked, said she was "perfectly happy, but could not see;" she died at nine and a quarter A. M., five days from the time of her delivery. The lochia were profuse, the day before death, and looked like sanguinolent serum. At the *post-mortem* examination, made at four P. M., the following appearances were noted. On opening the peritoneum, a small quantity of bloody serum escaped; coagula between the folds of the intestines, moulded to their shape; an elongated mass of sebaceous matter lay, perfectly free, directly beneath the peritoneum, which membrane was somewhat inflamed throughout; slight adhesions observed. The uterus was found ruptured completely across the anterior wall of its cervix, just below the os internum; the organ measured five and a half inches in length, from the fundus to the os externum, and four and a half inches in width.

Dr. Cabot remarked that, the first point which attracts notice in this case, because an unusual occurrence, is the *non-retrocession of the head*, and the firmness with which it retained its position against the perforator; judging by these facts, some of our older and most experienced practitioners denied the accuracy of the diagnosis. The firmness with which the head had been driven and impacted into the pelvis, accounts fully, in Dr. C.'s opinion, for its non-retrocession, although he supposed at the time, and still thinks, that the uterus may have pressed somewhat upon the fœtus and contributed to its retention in a fixed position. In regard to the diagnosis, Dr. C. said, he thought the slightest habitude in the use of the tactile sense, would preclude the possibility of mistaking the nature of such a case, or the part projecting from the womb; the change from a full and good pulse to a mere flutter; the facies, the emesis, and sudden cessation of the pains, of themselves, sufficiently establish the diagnosis. Dr. C. added, that the second point of interest is the question whether delivery should have been *sooner* effected: the result of the case might lead to an unhesitating affirmative reply, but the rarity of the accident must be borne in mind, and also the fact that many apparently impacted heads are finally delivered without interference, which of itself would induce delay, in order to make sure that there is no advance of the head. The doubt as to the

necessity of the destruction of a living human being, and, finally, the blame and odium that will rest upon the practitioner, should a bad result follow so serious an operation, are additional reasons for delay. Dr. C. would not, in another similar case, wait so long, before resorting to instrumental interference.

Dr. Cabot reported the following case :—

Keloides occurring in a Child.—S. H., 4 years of age in May, 1850, very healthy and free from all cutaneous disease, until May last, when he was very severely affected by small-pox, never having been vaccinated—is the seventh child of a mother 28 years old, who was married the day before she was 14 years old, and whose oldest child was born one month before she was 15. She had, she says, scrofula at 5 or 6 years of age, and has a large scar from it on the side of her neck; she lost, some years ago, the upper joint of a finger, from "felon." One of her children had herpes zoster six years ago, when 3 years old. The child S. H. is rather of a leuco-phlegmatic complexion and cast of countenance, thickish upper lip, &c. He recovered from the small-pox and was about the house early in July; about two weeks afterwards an appearance like a burn was observed by the family near the left angle of the mouth.

Dr. C.'s attention was called to this and other tumours on the 3d of October, when he found the principal tumour, near the left angle of the mouth, about two inches long in its longest diameter, and about three-fourths of an inch broad, very irregular in its outline, and having processes shooting out in different directions, as if formed by the running together of several tumours having their axes in different directions; the surface smooth, pinkish, with some vessels ramifying on its surface; firm and hard to the touch; resembling very much in its external characteristics the cicatrix of a burn. There was another smaller tumour close to the first, and, on the opposite side of his mouth were seven others, of which the longest was rather more than one-half by one-fourth of an inch. Besides these, there were five or six quite small ones in different parts of the face and two on the right arm. He never complains of pain except when touched on the tumours; cries often when washed, though not a crying child; seemed to suffer very severely from a fall upon the part, and, at another time, when the principal tumour was roughly handled. October 12th, tincture of iodine, diluted with about its bulk of water, was applied to the tumours on the right side of the mouth, without much, if any, appearance of pain. Oct. 13th, tincture of iodine, rather less diluted, was renewed, and to the tumour on the opposite side of the mouth, solution of gun cotton was applied, the effect of which was to deprive it entirely of colour, making it white, and causing the veins to disappear; some temporary pain seemed to be occasioned by it.

[Keloide is pronounced, by the authorities of the present day upon cutaneous diseases, to be exceedingly rare; older writers even denied its existence

(Bateman). Alibert first described it. Cazenave (*Maladies de la Peau*, 1838) states that it had not, up to the date of his work, been observed in *infancy*. Youth, bordering upon adult age, is its period of election; it is almost universally seated upon the anterior part of the chest, and, by preference, just between the mammæ; it is very rarely multiple. Biett refers to only two multiple cases; in one, eight patches existed; in the other, two; in the first case, on the neck and side of chest; in the second, on the front of chest. Cazenave alone, of the authors we have been able to consult, reports the appearance of the disease upon the *face* (*Dict. de Médecine*, tome xvii. art. Keloide), and this is exceedingly rare. The same writer declares its greater frequency in females and in those of lymphatic temperament.]

Feb. 24.—*Enlargement and Disease of the Liver and Spleen; Concrete Pus in the Heart, Hemorrhagic Abscess in the Back*, &c.—Dr. Bowditch related the following as having occurred in a man under his charge at the Massachusetts General Hospital.

J. C., æt. 44, Italian, mechanic, entered Aug. 22d, 1850. Had been in this country three years. Two years and a half since, while at Buffalo, his previous health having been good, he noticed a firm body underneath abdominal muscles, near to, and at the left of, the umbilicus. It was not painful. Two months *after* this, he had intermittent fever, but soon recovered. Another attack came on fifteen months afterwards, when the tumour became painful and increased in size. He never had jaundice or any hepatic symptoms. At his entrance the tumour was hard, smooth (evidently an enormous spleen), and extended from the left side nearly to the navel, and, from two inches below the umbilicus, up under the cartilages of the ribs. From this time until death it remained very much as at entrance, save that at one time it seemed rather to augment, while toward the end of life the upper part appeared rather less prominent. At times it was painful and tender, but usually not so. His general symptoms were as follows. His mind was always clear, but for several weeks before his death he was much troubled with dizziness, so that at times he was wholly unable to walk. Epistaxis occurred frequently, and once or twice required plugging of the nostrils. His digestion was usually good for simple articles, but the bowels were costive, and sometimes he vomited—once, a dark fluid containing granules, like decomposed coagula. At the latter part of life he had some cough and pains about the chest. The renal excretion at his entrance was abnormal, containing pus, and he had some priapism. He had no distinct febrile paroxysm. There was observed a tendency generally to glandular enlargements. On December 5th he spoke of a tumour that had suddenly appeared in the left back, and on examination a soft, regularly rounded, non-painful tumour was found. It seemed to contain fluid, and Dr. H. J. Bigelow agreed to that idea, but it was thought best not to puncture it, as it caused little or no suffering. Under hop fomentations, &c., it wholly disappeared in a very few

days. Jan. 20th.—A similar swelling suddenly came in the right back and side, extending laterally from within five inches of the sternum nearly to the spine, and from above downwards, over six inches. It projected at least an inch above the surface of the skin, but very gradually lost itself in the surrounding tissue. On the 31st it was punctured with a hydrocele trocar, and ℥xvij of a grumous pus drawn off, with some relief. Meanwhile, the right side of the abdomen, in front, became hard and tender, and the spleen seemed rather lessened in size. The patient gradually became weaker, and died February 12th.

The treatment had been, in the first stages, tonics, quinine, iron, &c.; finally, diuretics and local applications to the tumour.

At the autopsy, the whole right side of the thorax was very prominent, and an incision being made, a cavity was found extending (between the muscles, and at times involving portions of them) from the cartilages of the ribs in front to the vertebræ, and from the spine of the scapula to the ilium. It contained bloody pus, and large coagulated masses, at its depending parts. By the microscope, pus was detected, and also exudation corpuscles and blood cysts. There was no lining membrane to the cavity, but it was continuous, with an infiltrated mass of cellular membrane lying on the right of the abdomen, and between the internal and external oblique abdominal muscles. This mass of condensed infiltrated cellular membrane was the cause of the hardness felt in the right side of the abdomen a few days before death. Axillary glands enlarged, and, like other glands, had a scrofulous, curdy look. Axillary veins of right side filled with enormous coagula, which extended through the vena cava descendens and auricle and ventricle of the heart, there terminating in a jelly-like looking pus. Not a particle of pure fluid pus was to be seen, but this jelly, or "concrete pus," was composed solely of pus globules.

In the left pleura was a large effusion of recent serum or lymph. *Lungs* healthy. *Heart* had a few old white patches. *Liver* pale, *putty* like, soft, tearing with its own weight, red substance scarcely seen; weight 9 lbs. 5 oz. *Spleen* weighed 4 lbs. 15 oz. (!), strongly adherent by old bands to peritoneum; it was solid, red, and, on incision, presented a smooth cut, of a red colour, save that in spots there were hard masses of a shining chestnut. *Kidneys* slightly affected with Bright's granular disease. *Intestines.*—Some old constrictions, from cicatrization, were observed; otherwise, they, with the stomach and other organs, were healthy. *Head* not examined.

Dr. Bowditch remarked that the enormous spleen and liver were interesting, but the abscess containing blood, and the concrete pus in the heart, and the total subsidence of one tumour from the back, were the more important points in the case. He had never seen the like before, although the hemorrhagic abscess and epistaxis probably were dependent on the same cause, viz: the hemorrhagic diathesis, consequent on hepatic disease, of which we have seen not a few examples.

Feb. 24.—*Membranous Croup; recovery from first attack; death after Pneumonia consequent upon a second access of Croup.* Dr. HOMANS reported the case.—The patient was a child of full habit of body, two and a half years of age. Seizure sudden, on waking. Ipecac. and calomel, with antimony, were administered; nausea was maintained. Early in the morning after the attack, Dr. H. used the sponge probang to apply a solution of nitrate of silver (grs. xl to ℥j) to the larynx; false membrane was observed on the tonsils. The child suffered very great dyspnœa from the operation, for half an hour; in an hour's time it began to breathe better; in twenty-four hours from this it seemed greatly improved; then, the paroxysms returned, and the caustic solution was again applied. Five days from this time, the child did not require the physician's attendance during a period of ten days; symptoms of true croup then returned, and the existence of pneumonia was also suspected; Dr. H. again had recourse to the nitrate of silver. The child died, just twenty-two days from the date of first attack.

The following account of the *post-mortem* examination is communicated by Dr. J. C. DALTON:—The middle lobe of the right lung was in a state of gray hepatization throughout; solid, without crepitation, distinctly lobulated and granulated on the cut surface. The bronchial tubes of this part exuded yellow pus abundantly on pressure. There was also a little *red* solidification along the posterior edges of both lower lobes. No pleurisy anywhere, lungs otherwise natural.

The trachea and bronchi generally, down to the tertiary ramifications, contained an abundance of thickish yellow pus. There was a little greenish-yellow lymph on the posterior surface of the epiglottis, and the inner surface of the cricoid and arytenoid cartilages, and the vocal chords were plentifully coated with it. The lymph was soft and easily detached over the greater part of the surface, but along the vocal chords it was tougher and pretty closely adherent. Its greatest thickness was a little over one-sixteenth of an inch. It did not extend farther than one-quarter of an inch below the lower edge of the cricoid cartilage. The mucous membrane underneath the lymph, as well as elsewhere, in the larynx and trachea, was quite smooth and pale. There was no lymph on the pharynx, the arches of the palate, nor on the left tonsil. The right tonsil was not taken out. There was no œdema, nor any redness of the mucous membrane about the pharynx or glottis.

The lymph extended only a very short distance into the ventricles of the larynx, and the mucous membrane of these cavities was quite pale and natural in appearance.

Dr. HOMANS remarked that the case afforded an example of recovery from a distinct attack of membranous croup. The subsequent attack derived additional gravity from the combination of pneumonia with it.

Dr. C. E. WARE referred to a case, formerly reported by him, where fatal pneumonia supervened upon croup.

Dr. J. B. S. JACKSON had noticed the discoloration of the lymph, by the

action of the nitrate of silver, *very low down;* an evidence of the penetration of the sponge into the larynx.

March 10.—*Aneurism of Arch of Aorta.* Dr. COALE reported the case.—J. W., twenty-nine years of age, five feet six inches in height; square built; regular in his habits; quiet and pleasing in his deportment. Patient was born in England; his occupation here was that of an ostler. Whilst currying a horse, in October, 1849, in stretching out his right arm he felt something give way in his chest, and a sharp pain took possession of the spot, which he referred to the middle of the sternum, about three inches from its upper extremity. From this time, he was seldom free from the pain, which varied at different times, being increased sensibly by appreciable causes, such as exercise, bad weather, catching cold, &c., although, occasionally, he was worse without any apparent cause. Patient came under Dr. C.'s care in August, 1850, ten months after the first indication of his trouble. The symptoms were the pain, above mentioned, dyspnœa, inability to lie on the right side; otherwise, his health was not much affected. The pulse gave a slight thrill; percussion afforded no appreciable sign; auscultation detected the murmur of *aneurism.* The treatment was general, with the exception that, a little later, when the above symptoms were more marked, infusion of digitalis and elixir of opium were administered whenever occasion called for such remedies.

The bowels, during the latter part of the patient's life, were very indolent, and required the action of senna, jalap, rhubarb, &c., to relieve them. For a month before his death, a cough troubled him, at times, and swallowing became difficult, even of a teaspoonful of fluid at a time. His position during this month was unaltered, being propped up in an arm-chair. For the week before death, prostration of strength was so great as to lead Dr. C. to suppose he would die from constitutional exhaustion. His death, however, occurred instantaneously, from rupture, March 9th, just seventeen months, lacking one day, from the probable commencement of the disease. For two months before his death, the tumour exhibited itself externally, on the right side of the sternum, and *post-mortem* examination showed a little encroachment upon two of the upper dorsal vertebræ, producing an absorption of a large portion of their bodies. The aneurism was evidently the sequence of an organic change in the artery, and affected the vessel, more or less, from its origin to its descending portion. In one direction the tumour pushed out anteriorly to the ribs, whilst, in the other, the posterior wall of the crown of the arch pushed back against the vertebræ, compressing the gullet and causing the difficulty of deglutition. All the other organs seemed healthy.

Gout. Case reported by Dr. COALE.—Mr. R., æt. forty-five, of full, portly figure; has lived, upon an average, nine months of the year in the West Indies, for seventeen years; general health good; skin fair; every appearance of general well-being; habits at table moderate; has lately been "bilious," and

taken some aperients with relief of symptoms; found him, Nov. 4th, propped up on a sofa, complaining of pain in back of right hip, which had annoyed him for several days; spot somewhat hard and red; no fever; prescribed spirits of nitre, and wine of colchicum; in the evening, he had his feet down upon the floor and thought he felt better. Nov. 5th, 9 A. M., Dr. C. found him in great suffering after a most distressing night; hip hard, shining, red; pulse 112, hard; skin dry; tongue coated; urine contains reddish and whitish gravel; and is scanty and high coloured. In the evening, patient was easier, colchicum had been continued through the day with considerable effect on the bowels; gave it again at night with ipecac. and opium. Nov. 6th, night very distressing; no sleep; pulse 112, hard; pain not abated; bowels not open; continued prescription with Rochelle powder until free action; in evening, as usual, better; twenty drops of black drop to be given at bed time. Nov. 7th, night passed as distressing as before in spite of opiate; easier in the morning; hip more inflamed; urine scanty, high-coloured, and depositing reddish sediment; pulse and skin as before; continued colchicum with solution of nitrate of potass, and tartrate of antimony, as far as there was toleration; bowels free; applied stupe of conium and poppy-flowers to hip. Nov. 8th, night as usual, painful in the extreme; towards morning a discharge of urine commenced; profuse, high-coloured, clear; one-half gallon discharged in four hours; pulse 100; treatment not altered; in the evening discharge of urine unabated, growing lighter; pulse 88; pain less; hip appears about to point just at the great trochanter. Nov. 9th, visited him with Dr. Shattuck, Sr.; pulse 80; skin cool; great tranquillity of the system, though the night had been very painful; flow of urine continues, but is bright and clear; hip apparently fluctuating, and, after careful examination by both physicians, a bistoury was plunged one and a quarter inches into the most tense spot; no pus; continue prescription, but in half doses; stupes to hip. Nov. 10th, night more comfortable than usual; felt some chill; pulse 80; skin cool; allowed some chicken-tea, and discontinued prescription; hip looks much as before. Nov. 11th, everything looks well; Dr. C. called at midnight and found him in excruciating agony; at times beyond control. The height of the inflammation now seemed to be about five inches below trochanter; made two incisions into the thigh, each one and a half inches long; they bled very freely, and evidently relieved the tension; at 2 A. M., gave sulphate of quinine, gr. ij; pulse before that, 88, soft, but irregular and jerky; left him soon after in a deep sleep. Nov. 12th, had been tolerably comfortable since Dr. C. left him; had taken two doses of quinine; pulse 84; fuller and more regular; Dr. J. Mason Warren saw him with Dr. C. at eleven; made four more incisions, carrying them through the fascia; continued treatment, adding five grains of assafœtida every alternate four hours; in the evening, skin cool; pulse 64; urine light coloured; pain and tension decidedly less; next day improvement continued, and so for a week; at which time another accession occurred, and ten days after it, another still; each marked very distinctly by critical, profuse discharges of urine and immediate abatement of very severe symptoms;

after the last, matter was discovered beneath the fascia of the rectus femoris, and exit was given it by opening with a probe the cicatrix of one of the incisions made by Dr. Warren; two pints of laudable pus were immediately discharged, and another at night; two days after, inflammation took place in the abscess, and a pint of pink pus was discharged morning and night for a week, when the pus became healthy again. Upon carrying in a probe very carefully, it passed up on the outside of the ham to the dorsum of the ilium, eleven inches, where it dropped backwards, the abscess there forming a large sac, from which pus could only escape by means of a counter opening; two weeks after the first opening, the discharge was ten ounces morning and night, when the patient was attacked by erysipelas of the head and face, though not very severely. The discharge from the abscess at once ceased and the opening closed, whilst the erysipelas, treated with quinine, continued three or four days only. The improvement of the patient now progressed with two slight interruptions; an attack of excruciating pain in the ball of the great toe, which exhibited a red spot the size of a half dime, disappearing with the pain in twenty-four hours; and the recurrence of fluid in the abscess, which, however, disappeared without opening, under the influence of frictions with iodine ointment.

The notable points in this case are, gout attacking, at its first onset, a large joint like the hip; whilst the extremities were left intact, and its termination in an abscess.

Dr. J. B. S. Jackson asked, why the above case was described as one of *gout?* The hip-joint, a *large* joint, being the one mainly affected, and abscess being formed in its vicinity; erysipelas, also, was combined with it. Dr. J. said, he would rather have termed it severe inflammation.

Dr. Coale replied, that he had, at first, supposed it to be rheumatism; one of the *toe-joints*, however, had been affected; the paroxysms were regular in their access; the urine characteristic; in some points the case was anomalous.

Dr. J. M. Warren remarked that he had never seen more intense suffering manifested than in this case: the indication of existence of pus seemed almost indubitable; this led to free incisions.

Dr. Coale alluded to Sydenham's graphic description of the very *acute pain* of gout.

March 10.—*Variola in the pregnant female, between the seventh and eighth month of utero-gestation; disease not communicated to the child.*—Dr. Storer said, that, several years since, he reported a case to the Society, where a woman just recovering from *varioloid*, gave birth to an infant which was covered with the eruption of *variola*, and died from the effects of the disease in the course of the week after its birth.

Numerous cases might be cited, from various authors, showing the contagion to have been thus transmitted.

On the 19th of December last, Mrs. W———, between seven and eight

months pregnant, was attacked with small-pox; the eruption was making its appearance when Dr. S. first saw the patient. She had the disease very severely, and miscarriage was apprehended. No such accident, however, occurred, and she went safely to the termination of her pregnancy. Dr. S. anxiously awaited her delivery, dreading that the child would exhibit the marks of the infection. On the 28th of January, thirty-nine days, or five weeks and four days, after the appearance of the eruption in the woman, she was delivered of a fine-looking, healthy child, without the slightest trace of any intra-uterine disease. Dr. S. has vaccinated the infant *twice*, unsuccessfully, although the virus was inserted into the arm before it had dried upon the quills.

Contagiousness of Erysipelas.—Dr. Storer referred to the following case as bearing upon the contagious nature of the above disease.

Mrs. N———, Avery Place, was seized on the 20th ult., with the usual symptoms of erysipelas. On the third day from the attack, it had so far progressed, that the face was excessively swollen, and the eyes were closed. The progress of the disease was checked by the application of the tincture of iodine. During the five or six days on which Dr. S. considered it necessary to visit her, her infant, two months old, was kept at the breast as usual; the secretion of milk was somewhat diminished for one or two days, but the child was allowed no other nourishment. Thirteen days have elapsed since the appearance of the disease in the mother, but the infant still remains unaffected.

March 24th.—Case of Fracture of the Pelvis, with Rupture of Bladder.—Dr. J. M. Warren exhibited the specimens. They were taken from a man thirty years old, who died on his way to the hospital, a bank of earth having fallen on him an hour before. The following were the appearances presented by the body. A fullness was observed in the right iliac region. The perineum was somewhat fuller than natural to the right of the median line. The left side of the pelvis appeared drawn up, so that the spinous process was above the level of the right. The right lower extremity was, by measurement, one half an inch longer than the left. On examination of the pelvis, a fracture was detected near the symphysis pubis, also one through the left sacro-iliac synchondrosis. By rotating the left lower extremity, the left ilium was freely movable, with some crepitus attending the motion. Powerful flexion of the right lower extremity produced an indistinct crepitus in the joint.

A catheter was passed with some difficulty through the urethra, and its point could at once be distinguished in the cavity of the peritoneum.

Permission being obtained, the autopsy was made five hours after death by Mr. F. J. Bumstead, of the hospital, who drew up the following account of it.

"On cutting into the peritoneal cavity, it is found to be entirely filled with blood. Its posterior wall is covered with a dark coloured ecchymosis, and is raised by a large effusion beneath. A small hernia of the tissues, external to the peritoneum, about the size of the little finger, protrudes through the mem-

brane, back of the right os pubis. The confused state of the parts beneath the peritoneum, renders a minute examination impossible. The blood has undermined the peritoneal cavity, and infiltrated the iliacus and psoas muscles.

"The bladder is ruptured to the extent of an inch above the triangular ligament, and posterior to the symphysis pubis. The diagnosis of fracture through the symphysis, and through the left sacro-iliac synchondrosis is found to have been correct. The fragments of the latter are separated to the width of a finger. In addition, the right acetabulum is crossed by several fractures which extend through the ischium and ilium, entirely isolating several pieces of bone. From the fundus of the acetabulum, a triangular piece of bone has been drawn inwards, and the corresponding surface of the head of the femur is crushed to the depth of one or two lines. Ligamentum teres not injured."

March 24.—*Hypospadias.* Reported by Dr. WILLIAMS.—The patient was a man about fifty years of age, and the father of two children. The anomaly was accidentally discovered on undertaking to introduce a catheter, to relieve a retention of urine. The dorsum of the penis and glans presented nothing abnormal. The under surface offered the following appearances:

The frænum was wanting. The edge of the prepuce was united to the under surface of the penis, at the distance of an inch from the extremity of the glans, with the exception of a horizontal slit about two lines in length. The catheter being introduced at this point, in the direction of the axis of the penis, was arrested after passing about an inch, but by carrying its point a little towards the left, it entered the urethra, which described a curve from this abnormal orifice to its usual direction. A cul-de-sac, admitting only the point of a probe, existed in the glans at the natural situation of the orifice of the urethra, and another similar cul-de-sac between this and the slit above mentioned. There was no appearance of any continuation of the urethral canal from the abnormal opening towards the extremity of the glans, but the narrowness of the slit prevented an exploration to determine if any such existed.

The patient being delirious, and remaining so until death, it was impossible to obtain any information respecting the case, except that above given.

March 24.—*Oil of Turpentine in excessive dose.*—Dr. PARKER reported the case. —— E., æt. 26, married, glass-cutter, robust, sanguine, temperate, chews tobacco, and smokes. Has been in the habit of taking as a remedy for pyrosis, to which he is subject, first, "a lump of rosin as big as a nutmeg," followed by "half a tumbler-full of spirits of turpentine" (ol. terebinth. fl. ℥iv). This dose invariably "helps him." He once repeated this quantity, three times in twelve hours, without any known injury resulting. Feb. 5th, 1851:—Went yesterday morning to a turpentine factory, and took his dose in somewhat of a hurry; using the spirit as it ran fresh from the still; thinks he took a little more than usual. Was soon attacked with dizziness, a sen-

sation of extreme weakness, and pains all over his body, particularly in the region of the kidneys and bladder; he fell in the street, while going to an apothecary for relief; took a large dose of spts. æth. nit. without benefit. In the evening he walked to Dr. P.'s house with difficulty; complained mostly of pain in hypogastrium, and difficult and painful micturition; some dizziness and prostration; other symptoms not marked; advised to go to bed, to take pulv. ipecac. et opii, grs. xij, statim; and inf. lini. sem. ad lib. Feb. 7th, patient called, and said he was immediately and completely relieved; a fellow workman came with him, to certify to the quantity of turpentine and rosin he is in the habit of taking.

Dr. ABBOT remarked that he had known a "hard drinker" to take *oil of turpentine* and *camphene*, in large quantities, with apparent impunity. In the above case, the patient is stated to be temperate.

April 14.—*Tuberculous Disease of Mesenteric Glands, subsequently, apparently of Lungs. Tuberculous Masses in Spleen, Liver, and Supra-renal Capsule.*—Reported by Dr. SHATTUCK, Jr.—S., twenty-two years of age, eyes gray, hair chestnut, lips thin, knowing of no hereditary predisposition to tubercular disease, a common out-door labourer till within five months of his death, and then for three months in a nail factory. Eighteen months before his death, soreness of the abdomen came on, and soon after, a tumour, perceived in the epigastrium, and a few weeks later another, below the umbilicus. Loss of appetite, of flesh and strength; at the end of nine months, two or three attacks of hæmoptysis, rather copious. Hectic fever about five months before his death, and night-sweats for three months. The cough commenced between two and three months before death. He entered the hospital March 30th, weak, emaciated, with a pulse of 120, with dullness, bronchial respiration and mucous râle over upper region of both sides of chest. A tumour was felt in the vicinity of the liver, and a movable tumour below the umbilicus. The glands of the neck were enlarged and sore. He died April 8th. At the autopsy, the lungs were found filled with tuberculous matter, and the bronchial glands were tuberculous. The liver weighed three pounds fifteen ounces, and contained large, rounded, tuberculous masses, ten or twelve in number, averaging one and a half inches in diameter. The epigastric tumour was formed by one of these masses. The spleen weighed seven ounces, and contained three tuberculous masses, each about the size of a chestnut. There were several ulcerations in the small, and two or three in the large, intestines. The mesentery and its glands weighed one pound one ounce. Three or four of these tuberculous glands together, constituted the tumour felt during life, which was four and a half inches long by two and a half broad. Several tuberculous masses, of the size of a pigeon's egg, were found in the subperitoneal membrane, attached to the diaphragm. The kidneys were normal, but just above the right kidney, in the place of the supra-renal capsule, was a tuberculous mass, one and a half inches long by one inch in breadth, and the kidney, with this mass, weighed eight ounces.

Dr. Shattuck also reported the following case:—

Tuberculous Disease of Lungs, Bronchial Glands, Intestines and Mesenteric Glands; Scrofulous Disease of Right Ankle-joint.—This patient was fourteen years of age, hair chestnut, eyes dark, lips thin; had been employed for two years in quilling cotton, breathing an atmosphere loaded with dust. No tuberculous disease in family. She commenced coughing about the middle of November, was soon obliged to give up work, with loss of flesh, night-sweats, and early in January, pain in the left ankle, with swelling. Feb. 18th, there was dullness over left upper chest, anteriorly and posteriorly, gurgling under left clavicle, dullness, bronchial respiration, mucous râle over right upper back, scarcely any vesicular respiration; emaciation quite marked. She kept her bed mostly, took cod-liver oil, a drachm three times a day, for thirty days; was constipated, the bowels being kept open by gentle laxatives; the pain and swelling on the whole continuing, though relieved by opiate fomentations. She died on the 6th of April. At the autopsy, the lungs were found loaded with tubercular disease, with small cavities at the summits; tubercular disease in the bronchial and mesenteric glands, none in the cervical or inguinal. Tuberculous matter was found within the first five feet of the small intestine, and numerous ulcerations lower down. The cartilages of the astragalo-scaphoid articulation were thin and detached; the ends of the bones spongy; no tuberculous deposit; serous infiltration of subcutaneous cellular tissue.

April 14.—*Extensive Emphysema into cellular tissue of Face, Neck, and Chest, during difficult labour.*—A case of this nature was reported by Dr. Abbot. The distension from effused air was excessive, extending over the whole face, neck, and chest of the patient, as far down as the second or third rib; surfaces crepitating on pressure. The eyes were nearly closed. The affection was not attended by any dyspnœa, nor by any inconvenience except a sense of extreme distension, as if the skin were in danger of bursting, during the pains; nor was it followed by any pulmonary symptoms; it subsided in from eight to nine days. The appearance of the distended surfaces was very like that observed in severe erysipelas, although the redness was not so great as in that disease. Much comfort was derived from the application of cold water during the labour. Subsequently to the labour, slight tenderness was remarked, just above the upper border of the sternum.

Dr. A. thought it probable that the air escaped from the neighbourhood of the bifurcation of the trachea.

[Dr. Blundell, in his "*Principles and Practice of Obstetric Medicine*," remarks, speaking of the above phenomenon, that disruption of the larger air-tubes is not of frequent occurrence; when it happens, an erythematous flush of the integuments manifests itself simultaneously with the swelling from the effused air, the circulation being accelerated. The patient, at first glance, would be thought to labour under a sudden attack of erysipelas. Immediate delivery is desirable; the patient should be prevented from re-

taining the breath and bearing down. After delivery, the aperture, which, perhaps, is rarely large, probably heals easily and spontaneously. Dr. B. had seen but one case.]

April 14.—*Immediate division of the Funis Umbilicalis in connection with sudden death of the newly-born: hemorrhage occurring from the mouth, &c.*—Dr. STORER remarked that at the last meeting of the Society, in answer to a question put to him upon the subject, he stated *that in a case of labour he never separated the child from the mother until the pulsations in the cord had ceased.* After the meeting had adjourned, he was surprised to learn that some of the oldest and most distinguished members of the Society never waited until the funis ceased to pulsate, but severed the cord as soon as respiration was established. Dr. S. observed that as this might be the general opinion of the Society, and as his remarks may even have appeared absurd, he would ask permission to give his reasons for the opinion he entertained upon the subject, and to cite an authority or two to support it. He stated that it had been for many years a rule of practice, with him, to *wait in all cases of labour until the pulsations of the funis could no longer be felt, previous to the application of the ligature to it,* and that he had year after year thus taught the young gentlemen who had belonged to the private medical school with which he had the pleasure to be connected. Very early in the practice of his profession he met with two cases in which profuse bleeding occurred from the extremity of the cord, owing to the ligature having been removed after the funis was severed. This hemorrhage could not have occurred, unless the blood was still flowing in the vessels of the cord, and, as in the vast majority of cases the pulsations of the funis cease in a few moments (Dr. S. never having known them to continue longer than twenty-five minutes, and that length of time in a single case only), it seemed to him that we should listen to this indication of nature, and wait *a few moments.* He had never met with a case of bleeding from the extremity of the funis since he had pursued this course. Besides, it had seemed to him that there was great danger to some of the important viscera, from the circulation being thus suddenly diverted to them. It is not unusual upon the birth of a child to find the funis pulsating with great force. Is it not more rational (asked Dr. S.) to allow this force gradually to subside, than to check it at once? And may not some of the cases of hemorrhage from the nose and mouth, which have been published in the foreign journals, have been produced by pulmonary congestion dependent upon this cause?

Dr. S. observed that perhaps most physicians would say that they never had met with any case which would lead them to think it necessary to wait a moment; with *Jewell* in the "*London Practice of Midwifery,*" they would remark, "When the child is born healthy, kicks and cries, it does not signify how soon we tie the navel string."

But there were some in the profession who considered it of importance to

delay. Thus *Churchill* says, "After waiting until respiration is fully established, or until the pulsation in the cord ceases, a ligature is to be applied." *Dewees* observes, "When respiration is established, either spontaneously or by artificial means, we apply a ligature to the cord, provided pulsation has ceased in it; but not until then." And *White*, in his work "*On the Management of Pregnant and Lying-in Women*," writes, "The funis umbilicalis should never be divided or tied whilst there is any pulsation. By this rash, inconsiderate method of tying the navel string before the circulation in it is stopped, I doubt not," says Mr. White, "but many children have been lost, many of their principal organs injured, and the foundation laid for various diseases."

Dr. S. added that should no member of the profession think the course here referred to necessary, a knowledge of the fact would not influence his practice. No argument had been offered against it, and the cases he had referred to, in which hemorrhage from the funis had nearly proved fatal, marked out for him his duty.

[The above remarks were elicited in consequence of a discussion which arose in the Society as to the propriety of tying the cord immediately, and before its pulsation had ceased. A case was reported to the Society at a previous meeting by Dr. Channing, where the child, apparently very healthy at birth, died in the nurse's arms while being dressed, violent hemorrhage from the mouth taking place; none from the cord, which was tied immediately after delivery.

Dr. Abbot asked if these cases are not referable to tying the *yet pulsating* cord? Dr. Bigelow, Sen., and Dr. Homans, considered *a fully established* respiration a sufficient warrant for severing the funis. A delay of a few moments cannot certainly weigh with the physician against even *possible* risk to the child.]

April 14.—*Spontaneous reclination of the Crystalline Lens.* The case was related by Dr. Bethune.—The patient is a man about 50 years of age. Cataract first appeared in the left eye, fourteen years ago. This eye went on to get wholly blind, so that with it he had no perception of light. In this state it remained till one and a half years ago (the *right* eye having for six months previous begun to lose its vision). At the period above mentioned, while walking out in the morning, he *suddenly* recovered sufficient sight to make out large objects. This degree of vision still remains.

His wife, who saw the eye on his return, says that it appeared precisely as at present. With the *right* eye he can now just count his fingers.

On examination, in *right* eye a bluish-white cataract fills the pupil; in *left*, the anterior chamber is clear; at the bottom of the posterior chamber, occupying from one-third to one-fourth, is seen the lens, apparently reclined, and moving up and down with the movements of the eye.

This patient was seen by two surgeons conversant with eye disease, shortly after the change took place, both of whom stated that it was the first case of the kind they had ever seen.

April 28.—*Dislocation of the Crystalline Lens without rupture of its Capsule.* Reported by Dr. Williams.—The patient, a man about fifty years of age, received a blow upon the left temple, some time since. When first seen, the lens floated freely in the posterior chamber, as the eye was moved in various directions. When lying upon his back, vision was partially lost, and when he stooped forward, the lens completely covered the pupillary aperture, and prevented the access of light. Its convex surface could then be observed, a little beyond the plane of the iris, in the anterior chamber. In size, the lens was nearly or quite of the average dimension.

An attempt was made to incise the capsule, by means of a needle passed through the cornea and pupil, but its toughness prevented more than a small puncture being effected. From this puncture a small amount of lenticular substance oozed out, but not enough to materially reduce the size of the floating cataract. It became, however, fixed behind the lower part of the iris, and can be distinguished in this situation at the present time.

The other eye had suffered from the effects of traumatic inflammation, presenting opacity of the cornea, anterior synechia, and a nearly closed pupil, but no appearance of cataract.

April 28.—*Malignant Disease of the Testicle—Diagnosis obscure from accompanying Hydrocele.*—Dr. S. Parkman presented the specimen, removed a few days previously; it was somewhat larger than the fist, and the whole organ was transformed into an almost diffluent, encephaloid substance, which, under the microscope, presented the usual appearances of malignant disease in its most marked degree. The interesting point in the case was the obscurity of the diagnosis. The patient was aged forty, of irregular habits, though of good general health, and the tumour had existed eighteen months, gradually increasing from its commencement without pain or inconvenience, other than from the weight and size. His physician inclined to regard it a hydrocele from its pear-shape and well marked fluctuation, but transparency being absent, doubts were naturally entertained, and Dr. P. was consulted. To ascertain the character of the tumor, which resembled a hydrocele exactly in every circumstance but its transparency, Dr. P. punctured it with an exploring needle, and the escape of a small quantity of *serous* fluid seemed to clear up any doubt that might be entertained, the absence of transparency being not unusual in hydrocele, either from a thickening of the cyst or turbidity of the fluid. The diagnosis being thus regarded as made out, Dr. P. introduced a trocar and canula, for the purpose of the radical cure by iodine. Nothing but blood followed the withdrawal of the trocar. It was then stated to the patient that the disease was either an hæmatocele, or some enlargement of the testicle itself—and it was proposed that a small incision should be made into the tunica-vaginalis, and if it was distended by blood, this should be discharged, and thus the disease be radically cured, or, if the testicle was found to be affected, it should be removed by an extension of the

incision. This was consented to—and no pain or other symptoms having followed the puncture, the next day but one, a small incision was made which gave issue to a moderate quantity of serous fluid; but the testicle being found diseased, its extirpation was immediately proceeded with. The disease was proved to be as described, one of the testicle, but the fluid secreted in the tunica-vaginalis, and a drop of which was discharged by the exploring needle, naturally led originally to a different diagnosis—especially as there never had been any pain or other sign of disease of the organ itself.

April 28.—*Membranous Croup successfully treated by cauterizing the Larynx with Nitrate of Silver.*—Dr. S. D. Townsend was called early in the morning, to a girl five and a half years of age, who had been unwell for two days. The croupy breathing did not come on until a short time before he visited her. She was treated with Dover's powder repeatedly during the day, and the room was filled with vapour by immersing heated irons occasionally in a tub of hot water. Cauterization with nitrate of silver was practised at noon and in the evening without much relief; at twelve P. M., the croupy respiration increasing, the patient was fast sinking from suffocation; the pulse intermittent; the caustic was more effectually applied. Expectoration of a portion of the membrane, an inch in length and half an inch wide, followed in fifteen minutes; relief was immediate; ether was also inhaled with a happy effect, producing a pleasant sleep. Several portions of membrane were expectorated during the night and the following day, and the respiration became natural. No patches of lymph upon the tonsils or fauces were discovered. At this time, seven days from the attack, the patient is playful, with a good appetite. Expectoration purulent and bloody. Has had no return of dyspnœa, but still speaks only in a whisper.

April 28.—*Tuberculous Disease; sudden death; congestion of the lower lobe of the left lung.* Dr. Shattuck, Jr., related the case.—The patient was a sailor, sixteen years of age; in October 1850, he began to cough, and hæmoptysis occurred on a voyage from New Orleans to Liverpool; one or two ounces of blood were raised. The cough continued for some weeks, but he considered himself perfectly well in December, when he shipped to go from Liverpool to St. Thomas. He was much exposed to wet and cold on the voyage, the forecastle being uncomfortable; the cough returned, and was accompanied by emaciation, loss of strength and night-sweats. At St. Thomas, no improvement in his health; one small hæmoptysis; he remained there a month, and then took passage for Boston, not well enough to do any work, and entered the Massachusetts General Hospital, about the middle of April, with cough, purulent expectoration, night-sweats, and quite marked emaciation; dullness on percussion and mucous râle under both clavicles. On Saturday morning, April 26th, he was remarkably bright, took his breakfast with relish, and, an hour afterwards, as he was walking about the ward, suddenly cried out for

help, and was assisted to a chair. Urgent dyspnœa existed, and ærated serum was profusely expectorated; the perspiration flowed in drops from his face, and duskiness of the skin was remarked. He died in less than an hour from the time of seizure. At the *post-mortem* examination, the whole lower lobe of the left lung was congested, the vessels filled with blood; no hepatization; extensive tubercular deposit in the upper lobe of the left, and in the right lung; cavities at the summit of both lungs. Ulcerations in trachea and upon mucous membrane of small intestines. No tubercular disease in other organs.

April 28.—*Extensive Mammary Inflammation.* Dr. Coale.—Mrs. B., æt. 26, primipara, had been affected for several years, with an irritable state of the breasts, causing them to swell and become very painful whenever she took cold. After an easy confinement, she did well until the third day, when an inflammation set in, affecting both mammæ, causing them to become enormously enlarged, hardened and painful. The tenderness was so great, that the elbows could not be separated from the side more than six inches. After the application of twelve leeches to each breast, a surface on each, two inches wide and six inches long, was painted with cantharidal collodion, and a profuse discharge established from the blistered surface. The effect was very happy, the inflammation so rapidly and totally subsiding, that the patient nursed her child within ten days of its birth.

April 28.—*Abscess of Mons Veneris.*—Dr. Bethune had, recently, a case of this nature. The patient, a mulatto girl eighteen years of age, was under his care for aquo-capsulitis; she was evidently scrofulous. Mercury, in the dose of one grain daily, was administered for a period of ten days; no effect upon mouth. At the end of this time the diseased eye having rapidly improved, inflammation of the cellular tissue of the pubis occurred; in a week, fluctuation was evident; on puncture, pus, of rather watery character, was discharged. There was considerable constitutional affection, which diminished, and appetite began to return before the discharge of the pus. 29th, patient nearly well; the eye, also, had almost recovered.

Dr. Parkman had seen two cases of abscess in the region of the pubis, where the pus was very fetid.

Dr. Minot referred to three cases, observed by him, of a somewhat similar nature, wherein tuberculous matter formed within the *labia*, and, softening, was discharged. The pain in these cases was excessive.

May 12.—Dr. J. M. Warren read the following letter on the use of chloric ether as a disinfecting agent, from Mr. C. H. Hildreth, one of the House Surgeons at the Mass. Gen. Hospital.

"Having recently had occasion for the use of chlorine as a disinfecting agent, I was led to consider, whether there might not be some method more convenient and efficacious than that usually adopted for its evolution. Though

the gas extricated by the new method is not chlorine, as it was at first supposed to be, but chiefly hydrochloric acid, yet it seems practically of at least equal efficiency for deodorizing purposes.

"Chlorine is usually generated by the action of sulphuric acid upon a mixture of binoxide of manganese and chloride of sodium; by the action of the same agent upon the chlorides of lime or soda; or by the simple exposure of the latter in open vessels. If, in the first process, the binoxide of manganese be omitted, hydrochloric acid is evolved; this latter method is in popular use. Even where the manganese is present, much hydrochloric acid is given off, and, if pure chlorine be desired, manganese and sulphuric acid only should be used. In either process the application of heat is necessary.

"The first of these methods is attended with some inconvenience, and requires considerable attention. By the second, the gas is rapidly liberated, but the supply is soon exhausted, and the materials must be replenished. The third is simple and convenient, but not very efficacious.

"The plan which I propose, is both simple and efficient. It consists in the combustion of chloric ether in a common lamp.

"The gas arising from the decomposition of the ether has been analyzed by Dr. Bacon, of this city, and found to be chiefly hydrochloric acid with a little chlorine. Practically, I have not found it less efficient than pure chlorine for disinfecting purposes. It has been used to a considerable extent in the Massachusetts General Hospital, and appears to give no inconvenience to the patients. Its odour may be plainly perceived upon entering a ward where the lamps are burning, and in a moderate degree it is far from disagreeable. So far as has been observed, it exerts no injurious influence upon the furniture or metallic utensils of the ward. Its deodorizing powers appear fully equal to those of chlorine.

"For disinfecting the wards of hospitals, or the private apartments of the sick; for deodorization during an autopsy in a private house, and for numerous similar purposes, I apprehend the chloric ether lamp will be found convenient, inexpensive, and efficacious."

Dr. W. stated that he had frequently employed the gas made as above described, during the last two months, and with much satisfaction; he considered it as the most neat and convenient process for deodorizing, where a gaseous substance was required, that had come under his notice. He had used it in a glass lamp, such as is manufactured for burning camphene; this is provided with a small cap or extinguisher, which covers the top of the lamp, and prevents evaporation of the ether, when not in use.

ART. VII.—*Cases of supposed Phthisis Pulmonalis treated with Cod-liver Oil.* By J. W. C. ELY, M. D. [Read before the Rhode Island Medical Society, March 19, 1851, and communicated by the Committee of Publication.]

THE following twenty-four cases were treated in the Providence Dispensary, Eastern District, from Feb. 1848 to March 1851. These cases are not selected; but they are all the cases of consumption that came under treatment in the dispensary, during the above-mentioned period, in which cod-liver oil was given. To these are appended notes of five cases, that occurred in private practice.

CASE I.—David McD., a dyer, aged twenty-eight, dark hair, a little below medium height, born in Scotland; married, of good habits, had been sick six months; admitted to the dispensary, Feb. 8th, 1848; since November had been confined to house; at this time was confined to bed in consequence of very copious hæmoptysis; besides this, the symptoms were small and frequent pulse, severe cough, muco-purulent expectoration, emaciation, failing strength, shortness of breath; a little later, hectic fever and night-sweats. Percussion gave dulness under left clavicle; inspiration very rough, nearly bronchial, expiration prolonged and distinctly audible; mucous râles. He remained in this state, without any marked change in the rational symptoms till the middle of June, though the physical signs showed that the tubercles at the apex of the lung had begun to soften. The genial warmth of summer so far restored his strength and mitigated the severity of his cough, that he was able to take gentle out-door exercise—but there was no improvement in the local trouble in the lungs. Upon return of cold weather all his symptoms grew rapidly worse; and to them were added hectic fever, severe night-sweats, and diarrhœa; soon after his stomach became disordered, it would retain only the blandest articles of diet. At this time he attempted the use of cod-liver oil, but his stomach would not retain it, owing (as I thought) partly to the inflamed condition of his stomach, and partly to the bad quality of the oil; it was the brown oil—none other could be had at the dispensary at that time—he was very anxious to use it, and made the attempt several times and in small doses. He died Dec. 3d, 1848.

No autopsy could be obtained.

CASE II.—Margaret G., aged two and a half years, of Irish parents, flaxen hair, and lymphatic temperament, lived in cellar tenement on bank of the canal: sick six weeks, as near as I could learn from her parents, who were of very drunken habits, and gave their children but little attention Admitted to dispensary, March 27th, 1848. *Symptoms*—Exceedingly rapid pulse, hurried respiration; almost constant cough; muco-purulent expectoration, or rather vomiting, as the fits of coughing ended in this; hectic fever, night-sweats and diarrhœa. *Physical signs*—Dulness at apex of both lungs; bronchial respiration, and subcrepitant râles; oil ordered, but owing to repugnance of child, and want of parental authority, it was not taken regularly. Died April 8th.

No autopsy permitted.

Case III.—Mary Jane W., aged four and a half years; American parents; fair hair and complexion; lymphatic temperament; residence, an attic; father died of consumption; all her brothers and sisters except one, then an infant, had died of consumption, or some form of scrofula (her infant sister has since died of consumption). Sick three weeks; admitted to dispensary, April 12, 1848; at this time was suffering from severe febrile symptoms and the peculiar cough of measles; for the past three weeks had been confined to the house with hooping-cough, which disease was then very prevalent in that part of the city. Upon second visit, she was covered with the eruption of measles; this ran its course and gave its character to the cough; after the disappearance of the measles she grew worse, rather than better; cough was very severe; emaciation great; very rapid and feeble pulse; hurried respiration; hectic fever and profuse sweats occurred every twenty-four hours. *Physical signs*—Dulness upon percussion under both clavicles; inspiration bronchial; expiration audible and rough, and subcrepitant râles; put upon use of cod-liver oil, a teaspoonful three times a day; it had no apparent good effect; she became very cross, and would not allow me to examine the lungs after the first few days. She went from bad to worse, and died June 23, 1848.

Upon *post-mortem* examination, found both lungs studded with tubercles, many of them miliary; the lungs did not collapse upon opening into the pleural cavities; and the amount of crepitant lung was very small.

At apex of either lung were many small tubercular cavities.

Case IV.—Winifred G., aged forty; a little above medium height; fair complexion and spare habits; born in Ireland; married; of intemperate habits; mother of case 2d; residence the same; sick two weeks; admitted to dispensary, April 15th, 1848. From the account she gave of her sickness, I came to the opinion, she had had a severe attack of acute bronchitis; she was then confined to the bed. *Symptoms* were quick, small pulse; accelerated breathing; severe cough, muco-purulent expectoration; emaciation. *Physical signs*, dulness under right clavicle; roughened inspiration, and audible and prolonged expiration; about first of May, she commenced the use of oil in tablespoonful doses three times a day. In the early part of June, she removed from her cellar tenement to dry and airy rooms; there was some improvement in her symptoms, and she was able to walk out; but the physical signs did not improve, but gave evidence of softened tubercles and small cavities; it was surprising that even the symptoms improved; she was dependent upon charity for her food and what little nursing she did have; her husband spent all of his scanty earnings in drink, and frequently returned at very late hours of the night to drive her out of her bed. About the middle of September she was removed to the house of a sister and well cared for, but the disease had then advanced to the third stage of consumption, and little or no benefit could be expected from continuance of the oil. Died Oct. 17, 1848. No autopsy could be obtained.

Case V.—Elizabeth M., aged forty-four; American; of medium height; black hair and dark complexion; spare habit; married; intemperate; sick nine months; admitted to dispensary, May 4th, 1848. *Symptoms*—Small and rapid pulse; great shortness of breath; almost constant cough; purulent expectoration; hectic fever and sweats; considerable emaciation; bowels costive when first seen, but early in June, diarrhœa was added to the list. *Physical signs*—Dulness under right clavicle; bronchial, almost cavernous respiration, and subcrepitant râles; at a later period amphoric respiration and metallic

tinkling and pectoriloquy; used the oil for three or four weeks, then gave it up and could not be induced to resume it, as she saw no benefit from what she had taken. Died July 8th, 1848. No autopsy could be had.

Her husband was intemperate and very poor. She had no one to nurse her or prepare her food but her neighbours.

Case VI.—Mary C. H., aged nine years; coloured; inmate of the Shelter for Coloured Orphans; seen for the first time, May 23d, 1848; sick one month. *Symptoms*—Quick pulse; some shortness of breath; emaciation; hard, dry, hacking cough. But little was revealed by percussion and auscultation at first; after three or four weeks slight dulness; short and rough inspiration, and audible expiration clearly indicated the deposition of tubercles. At this time was placed upon use of oil, and continued it till removed to Newport by her friends; at time of removal, the rational symptoms had improved; cough less; some increase in flesh and strength; physical signs remained the same. She left July 15th, 1848. Last week I learned that she was still living in Newport Poor-house.

Case VII.—Timothy H., common day-labourer, aged thirty-five years; born in Ireland; above medium height; brown hair; slight figure; married; of intemperate habits; sick eleven months; admitted to dispensary, Oct. 22d, 1848. The shanty he occupied was the most miserable I ever saw; its dimensions could not be more than ten feet by twelve; and not high enough for a man of medium height to stand erect; it was banked with earth half-way to eaves, except at the door, to exclude the cold; the furniture corresponded with the exterior; a fixture similar to a crib for cows, elevated two feet from the floor, served for a bedstead. They were almost wholly dependent upon private and public charity. But he utterly refused to leave this, his castle, and go to the asylum. When first seen, this case presented the following symptoms: Quickened pulse; severe cough; purulent expectoration; considerable emaciation; short breath; hectic fever, and sweats; had had hæmoptysis; was then confined to bed. *Physical signs*—Dulness marked; loud bronchial respiration, and abundance of subcrepitant râles. In November he commenced the use of the oil; but there was no improvement in his symptoms till February. During the spring, the cough and expectoration became considerably less; appetite improved, and he increased in flesh and strength, and during the warm weather was able to take considerable out-door exercise, and thought himself getting well. During the last part of summer omitted oil; upon return of winter and confinement to his den, he gradually lost all the ground he had gained, though he resumed the use of the oil, and died March 19th, 1850. No autopsy permitted.

Case VIII.—Martin H., aged six years, light hair and fair complexion, scrofulous diathesis, born in Ireland, had been sick two months when admitted to dispensary, which was January 2, 1849. Father was at this time suffering from necrosed femur. His parents gave the following account of his sickness: Two months before, he landed from an emigrant ship at Blackwell's Island, New York, sick with the measles. As soon as he was able to bear the journey, he was brought to Providence; since his arrival, he had suffered from a continued and severe cough, abundant expectoration, and constant loss of flesh and strength. *Symptoms* then were small and rapid pulse, muco-purulent expectoration, very rapid respiration, extreme emaciation, hectic fever, and sweats, with diarrhœa. *Physical Signs*—Dulness under

right clavicle, bronchial respiration, and an abundance of moist râles. He was placed immediately upon the use of the oil in small doses. For a few weeks there was no apparent improvement, though he did not decidedly lose ground. About the first of February an abscess formed over the elbow joint, which was allowed to open itself; another formed over the gluteal muscles, which was opened, and discharged a gill of healthy pus; these both kindly healed. During this month he began to improve; the first decided mark of improvement was in the appetite and lessening of the diarrhœa, and increase of flesh. By the first of June he was able to go out; on the 8th of August I found him with his play-fellows, enjoying their sports with as much zest as any of them. He coughed and expectorated none, and was as fleshy as he had ever been; he is now in perfect health. This family were very poor; during the cold weather their one room was many times uncomfortably cold, even with an overcoat on.

Case IX.—Mary S., aged 33; light hair and complexion; below medium height; in health fleshy; born in Ireland; of good habits; had had a cough for three weeks; admitted to dispensary January 19, 1849; was then about house, four months advanced in pregnancy. *Symptoms*—Accelerated and small pulse, severe cough, muco-purulent expectoration, shortness of breath, hæmoptysis, and loss of flesh and strength. *Physical Signs*—Slight dulness under right clavicle, rough inspiration, and audible and prolonged expiration. Commenced and continued use of oil regularly for about four weeks; at end of this time she expressed herself unwilling to take it regularly, as she had not improved under its use; and as she had been troubled with nausea and vomiting, and an attack of local pleurisy occurring about this time, I did not insist upon its continuance. Left dispensary April 13. I afterwards learnt that she was confined in due time, and soon began rapidly to decline, and died two months after confinement.

Case X.—Patrick H., aged thirteen months, had been sick one month, child of Case VII. The only other child had *backward* curvature of the spine, admitted to dispensary March 8, 1849; presented the symptoms, and some of the physical signs of consumption; took the oil for a fortnight without benefit; died April 9.

Case XI.—Maria M., aged six years, coloured, inmate of the Shelter for Coloured Orphans, had been sick three weeks, admitted to dispensary March 18. *Symptoms*—Quick pulse, dry, severe cough, a little shortness of breath, loss of flesh and strength. *Physical Signs*—Slight dulness and rough respiration; placed upon use of oil in teaspoonful doses; before any decided improvement had taken place was removed to south part of the State by her friends, March 28, 1849.

Case XII.—Margaret McC., aged 32, below medium height, slight figure, and light hair; born in Ireland; married; intemperate; residence a miserable house on India street; the family were very poor; had been sick four months; admitted to dispensary April 17, 1849. A few minutes before my first visit she had been delivered of a very small and much emaciated male child at full time. *Symptoms*—Weak and rapid pulse, purulent expectoration, breathing short and difficult, great emaciation, and soreness and tenderness over bowels, with diarrhœa. *Physical Signs*—Dulness under both clavicles, bronchial respiration at apex of one lung, and cavernous at apex of the other, and subcrepitant râles; had had hæmoptysis. Commenced oil, and con-

tinued it till sent to asylum, which was as soon as she could bear the ride. Died June 23d. No autopsy could be had.

Case XIII.—Abby B., aged six years, coloured, inmate of Shelter, first seen October 12, 1848; had been sick four weeks with whooping-cough; presented following symptoms: Almost incessant cough, muco-purulent expectoration, rapid and weak pulse, short breath, great emaciation, and had had slight hæmoptysis, dulness under clavicles, rough inspiration, and prolonged and audible expiration, with moist râles. Commenced use of oil in teaspoonful doses, and continued it till January 17, 1849, when she was discharged free from cough and expectoration, in full flesh and strength, to all appearance well; the moist râles had gone, respiration better; but there still remained some roughness and dulness. On the 16th of the following October she again came under treatment, with about the same train of symptoms as the year before, but auscultation gave evidence of softened tubercles and commencing cavities; placed again upon the use of the oil, but it did not at all stay the progress of the disease. Died January 19, 1850.

Case XIV.—Harriet B., aged five years, coloured, inmate of the Shelter; was brought there sick; could not learn how long she had been sick; mother died of consumption; several brothers and sisters had died of some form of scrofula. This case presented the signs and symptoms of advanced stage of consumption; placed on use of oil, but it had no beneficial effect. First seen May 15, and died May 26.

Case XV.—Bridget D., aged nine years, of fair complexion and light hair, scrofulous diathesis, born in Ireland, sick one month, admitted to dispensary July 26, 1849. *Symptoms*—Dry hacking cough, a somewhat accelerated pulse, loss of flesh and strength. *Physical signs* were dulness under right clavicle, and nearly bronchial respiration. Used oil till September 1st, when she was discharged free from cough, fleshy, and with good appetite, and feeling perfectly well. January 14, 1850, was again called to attend her with hydrocephalus. Parents (who were of the more intelligent class of Irish, though poor) told me that she had been in good health till ten days before. Auscultation and percussion gave no sign of the tubercular deposit, which I felt quite sure existed there the preceding July. She died January 29. No autopsy could be obtained.

Case XVI.—Thomas D., stone-cutter, aged 37, below medium height, dark hair and complexion, born in Ireland, married, of intemperate habits, had been sick three months; before admission to dispensary he had been confined in the Providence jail; seen for the first time November 22d, 1849; at this time presented the symptoms and physical signs of the first stage of consumption; placed immediately on the use of the oil, and took regularly a tablespoonful three times a day till December 18, when he went to the asylum. There he continued the oil till the 1st of February, when he was discharged at his own request. At this time he had greatly increased in flesh, and was but little troubled with cough and expectoration, and went to work at his trade. August 24, he again applied to the dispensary in the last stage of consumption, and, though he used the oil, it only mitigated some of his symptoms. He died September 23.

Case XVII.—Thomas McD., labourer, aged 29, medium height, brown hair, born in Ireland, married, of good habits, had been out of health and

unable to work for fifteen months, admitted to dispensary December 1, 1849. *Symptoms.*—Pulse 80, cough, purulent expectoration, short breath, emaciation, and profuse hæmoptysis. *Physical signs.*—Dulness and bronchial respiration. He was placed immediately on the use of the oil. He left dispensary December 20, 1849. I have since learned that he continued the use of the oil, and is still living.

Case XVIII.—Mary N., chambermaid, aged twenty-five, born in Ireland, single, of good habits, had been sick three months, admitted to dispensary December 11, 1849; she was in the last stage of consumption, had used the oil before applying to the dispensary, but without benefit; died December 15.

Case XIX.—Anne G., aged twelve years, coloured, inmate of Shelter, had been sick three or four weeks; first seen January 4, 1850, of very scrofulous constitution, mother died of consumption, and she has suffered from the various forms of scrofula since infancy. *Symptoms*, when she commenced use of the oil, were small, quick pulse, breathing short, very severe cough, purulent expectoration and great emaciation, hectic fever and diarrhœa; had had hæmoptysis. *Physical signs.*—Decided dulness under left clavicle, bronchial respiration, and a sound like that made by crumpling parchment, with subcrepitant râles. Discharged June 3d to all appearance well, free from cough, and all the other symptoms above mentioned, and fleshy as she had ever been. She is now free from all symptoms of consumption.

Case XX.—Honora K., aged fourteen months, parents Irish, had been sick five months; admitted to dispensary Jan. 30, 1850. *Symptoms.*—Very rapid pulse; severe cough; extreme emaciation; long-continued diarrhœa, and hectic fever, and night sweats; dulness at apices of both lungs; bronchial respiration and an abundance of mucous râles; used oil without benefit, and died March 4, 1850.

Case XXI.—Hugh D., a tanner, aged twenty-six, born in Ireland, of dark hair and complexion; medium height, and quite full habit in health; married, and of good habits; had been sick five months; admitted to dispensary Feb. 20, 1850. *Symptoms.*—Confined to bed; quick pulse; cough; purulent expectoration; great emaciation; hectic fever; night sweats, and severe diarrhœa. *Physical signs.*—Dull on percussion at apex of right lung; bronchial and cavernous respiration and pectoriloquy; subcrepitant râles; stomach inflamed, and very irritable, could bear only the blandest articles of a farinaceous diet, and these it would sometimes reject. He attempted to use oil in small doses, but his stomach would not bear it; died March 15.

Case XXII.—Margaret D., domestic, aged twenty-five, born in Ireland, single, medium height; of good habits; had been sick one year; admitted to dispensary July 25th, 1851. *Symptoms.*—Pulse small and 120; severe cough; muco-purulent sputa; shortness of breath; emaciation considerable; some hectic fever and sweats; had had hæmoptysis. *Physical signs.*—Dull at apex of left lung; bronchial respiration and moist râles; placed immediately on use of oil and continued it, a tablespoonful three times a-day, till the middle of September, when she ceased to call; at this time she had regained her lost strength, and more than usual amount of flesh; a slight cough remained; the physical signs had improved; she thought herself well. I have not heard from this case since.

Case XXIII.—Patrick O., common day-labourer, aged thirty-three, above medium height; dark hair and eyes; of spare figure, born in Ireland, widower; of good habits; had been sick twenty-one months; applied to dispensary Oct. 14th, 1850; he lived in an attic with his two young children, and no housekeeper, dependent upon charity for his dinner and cooking; could not be induced to go to the asylum. *Symptoms.*—Quick pulse; cough; purulent expectoration; short breath; emaciation and hectic fever; dulness under right clavicle, and bronchial respiration; used the oil regularly, but without benefit. Died January 17th, 1851.

Case XXIV.—Mary D., aged thirty-six, born in Ireland, medium height; married; of good habits; had cough for two weeks; admitted to dispensary Jan. 8th, 1851; was confined the 1st of December. *Symptoms.*—Cough; slight acceleration of the pulse; mucous expectoration; short breath; loss of appetite, strength, and flesh; profuse perspiration caused by slight exertion. *Physical signs.*—Dulness under left clavicle and bronchial respiration, with subcrepitant râles; placed upon use of oil; left dispensary Feb. 10th, somewhat improved—left because she did not improve fast enough to suit her ideas of medical practice.

To recapitulate. There were two cases (1 and 21) in which the oil could not be retained on the stomach; in these cases, the blandest articles of diet were often vomited. There was great tenderness over the stomach, and a peculiar red and raw, but moist appearance of the tongue.

Four cases (6, 8, 15, and 19) in which the use of the oil was followed by apparent recovery.

Four cases (7, 13, 16, and 17) in which the disease appeared to be arrested by the oil; but it afterwards returned and proved fatal.

In twelve cases (2, 3, 4, 5, 9, 10, 11, 12, 14, 18, 20, and 23), its use was followed by no decided improvement. But of this class there are four cases (2, 10, 11, and 14) in which it did not have a fair trial, as it was taken but a few days and irregularly; and in three cases (2, 10, and 14), it was not used till a few days before death.

Two cases (22 and 24) left the dispensary, one very much improved, the other but slightly. What the result will be, time alone can reveal.

All the subjects of this paper were poor, and many of them had drunk of the bitter cup of poverty to its very dregs. Few, except the inmates of the Shelter, had anything that could be called nursing; some sadly lacked for bread. All, except the children of the Shelter, were badly housed and lodged. None had the comforts of even competency, or the help it brings to any course of practice in the treatment of this disease. Most (as is usually the case with the poor) applied for medical aid late in the disease.

The following cases occurred in private practice:—

Abby P., cook; aged twenty-five; coloured; above medium height; single; of good habits; had been sick five months; first seen January 3d, 1851. *Symptoms.*—Pulse small and weak, 100 and above; severe cough; mucopurulent expectoration; short breath, and considerable emaciation; some dyspeptic symptoms; distress after taking food; tenderness over stomach, and

constipation; slight hectic fever, and at one time night sweats. *Physical signs.*—Decided dulness under right clavicle; bronchial respiration and subcrepitant râles; placed immediately on use of oil; in three or four weeks the dyspeptic symptoms disappeared; coughed and expectorated much less, began to improve in flesh and strength, and has continued to improve up to the present time; coughs only a little at night and in morning; is nearly as fleshy as in perfect health, and feels herself nearly well; has been out; physical signs have somewhat improved; dulness not quite so extensive; bronchial respiration less; and superficial râles nearly gone. She still continues the use of the oil.

To Dr. C. W. Parsons I am indebted for notes of the two following cases:—

Amelia M., aged ten; of lymphatic nervous temperament; her mother died of phthisis; has had two or three turns of lung fever, so called, in successive winters. This winter she took cold, a fortnight after the eruption of measles had disappeared, and was confined some weeks with severe cough; profuse muco-purulent expectoration, hectic fever, and great debility. *Physical signs.*—A slightly prolonged expiration, with very slight dulness on percussion, below humeral end of right clavicle; attempted to give her cod-liver oil, one teaspoonful twice a day; for a few days she took it well, with no obvious effect of any kind. But it soon became nauseous, and though she took it very resolutely, it caused nausea and feeling of weight in the stomach, and was once or twice vomited up. It was relinquished. Under simple expectorants she gained, and was soon able to bear the tartrate of iron, under which she steadily improved, and in five weeks from the first time seen, she was able to go out.

F. S., aged about twenty-four, clerk, was dyspeptic, and rather weak for many months, about two years ago. He was troubled with flatulence, eructations, and distress after eating. In January, 1850, he had become free from these symptoms, but had a slight hæmoptysis. Through that year he was occasionally troubled with wandering pains in the shoulders and chest, and slight cough; thought he was made worse by close application at the desk, and took one or two excursions. He was improved by a trip to Worcester, but took colds twice on journeys to New York, and seemed not to be benefited by them. Last autumn he walked usually six or eight miles a day. He grew thin and weak, and his cough was more constant, though never very troublesome. In January, 1851, he had lost more than twenty pounds; looked quite thin and pale, and again applied for advice. Respiration was pure over the front of the chest, with a mere suspicion of roughness below one clavicle, near its outer part. He began to take cod-liver oil, and felt better in a few days. Soon after this he went to Worcester, continuing to take the oil, and going out but little while there. He came back in about four weeks, very much better, and has since continued to improve. He weighed one hundred and twenty-eight pounds when he went to Worcester, and one hundred and forty-two pounds when he came back.

For the facts of the following case, I am indebted to the kindness of Dr. Mauran:—

M. W., a teacher in one of the grammar schools; aged nineteen; dark hair; florid complexion; a little below medium height; full figure, and full chest; sanguine temperament; hereditary taint of consumption on the paternal side.

The party had suffered from two or three attacks of aphonia. In June, 1849, she was attacked with double pneumonia, but upon the subsidence of this disease, the cough continued. She expectorated mucous sputa, and did not regain lost flesh; hectic fever recurred daily; pulse slow, except during paroxysm of fever. About the first of September, examination of the lungs gave the following: Slight dulness under humeral end of left clavicle; roughened inspiration, and audible and prolonged expiration; the symptoms gradually grew worse till November, when auscultation gave evidence of softened tubercles and cavities formed in left lung; expectoration became purulent; emaciation was considerable; was confined to her room, and part of the time to her bed; at this time she was placed on use of cod-liver oil, a tablespoonful three times a day; in course of four or five weeks showed signs of improvement; coughed and expectorated less, and began to improve in flesh. In February was able to be about the house and attend to light duties; during the last part of spring, exchanged calls with her friends. One evening in the last of May played and sang the whole evening with a party of friends; the next morning she had an attack of profuse hæmoptysis; these recurred repeatedly, and she sank under the hemorrhage, and died June 17th, 1850.

To the kindness of Dr. Fabgan, I am indebted for the following case:—

H. C. A., seamstress; aged thirty-three; above medium height, and of slight figure; three or four of the family had died of consumption; she had been six weeks sick when first seen, which was on Dec. 30th, 1850. *Symptoms.*—A quick small pulse; severe cough; mucous expectoration; considerable emaciation; pains in chest, and a feeling of tightness across it. *Physical signs.*—Dulness at apex of right lung; bronchial respiration and subcrepitant râles. About the middle of January, was placed on the use of cod-liver oil; not a fortnight had elapsed before she began to improve, and at the end of two months all the above-mentioned symptoms had disappeared, and she was more fleshy than when in good health.

In the foregoing abstract of cases, I have aimed at brevity, in order not to prolong this paper to too great a length; but I fear that the notes of some of the cases are so imperfect as to be uninteresting, and of no practical value.

Providence, *March 19th*, 1851. No. 172 Benefit Street.

Art. VIII.—*On the Uses of the Eustachian Valve.* By R. Randolph, M. D., of Pennsylvania.

The provision in the fœtal heart which has received the above designation, although comparatively insignificant as to the space which it may fill in the wide field of physical research, has not failed to obtain from the observers of nature an occasional notice and conjectural comment. There are two such instances, at least, which claim attention, in which the suggestions advanced have met with free currency and a share of reputation. But of these it may

be safely said that, while they are recommended by an essential similarity, neither of them has been universally received with absolute satisfaction; and a close examination of them must, I think, bring to light a want of accuracy and completeness sufficient to account for the existence of some reserve in the approval of those who have been led elsewhere to appreciate the mutual fitness and subserviency which prevail among created things, irrespective of apparent magnitude.

In accordance with the hypothesis of Sabatier, the Eustachian valve has been often represented as an essential contributor to the development of the brain. By shielding, that is, the upward and placental current of blood, upon its entering the right auricle, from the more thoroughly venous stream of the cava descendens, and by directing the former, in a degree uncontaminated, into the route which leads to the head and upper extremities. Professor Wistar found for it another service (dependent, of course, upon the same direct action of the valve) in the securing of a like supply to the heart itself, whose labours are already so considerable and so obvious as to furnish a notable pretext for such a distinction. Whatever the respect to which these views may have formerly been entitled, either on the ground of authorship, or on that of intrinsic plausibility in the then less advanced state of anatomical science, one simple and well-known circumstance of itself forbids our regarding them in the present day as altogether adequate: namely, that the value is found proportionally largest at the earliest stages of its existence, when the otherwise imperfect condition of the heart nevertheless insures a speedy coalition of the two dissimilar currents. For the septum of the ventricles is not completed until about the end of the second month of the embryo, while the Eustachian valve is heard of (as may hereafter be seen) weeks previously. The heart in the mean time consists of a ventricle and two auricles; the embryo, in this particular, having reached a position in the progress of development corresponding to that occupied by the reptile in the fixed scale of animate nature.*

What is the function of the Eustachian valve at that earlier date?

Confining our attention to the heart itself, we recollect that both venæ cavæ discharge into the right auricle; and that, during intra-uterine existence, there is no supply by way of the pulmonary veins, even when these have been formed; the left auricle would therefore be entirely out of the route of the circulation, except for the deficiency (foramen ovale) in the auricular septum;

* Authorities appear to differ respecting the exact date of the septum of the auricles. The question is a verbal one so far as relates to the present subject, some circumlocution merely being avoided by the view above assumed, *i. e.* that it exists prior to the septum of the ventricles. Under the contrary supposition, the chief difference would be that, instead of speaking of the "left auricle," we should have to do with such phrases as "that portion of the common auricle which is afterward to become the left auricle," &c. The assumption of the text has evidently the authority of analogy in its favour.

the ventricular cavity, we have just seen, is at this time one and undivided. With these facts only before us, we might readily conceive that, at the instant when a contraction of (both of) the auricles occurs, accompanied by the ventricular expansion, there should be a tendency for all the blood which passes through the right auricle, to rush directly into the common ventricle by the right ventricular opening; that this course, which might at first be maintained by the expense of an unnatural rapidity at the entrance chosen, would be afterward confirmed by an enlargement of that entrance; and that the left auricle, not being then needed, would not be found in its place when its services are called for. Against such a defect as this, the Eustachian valve may be supposed to provide. By the interposition of that barrier, the access of the blood to the ventricle by the right orifice being necessarily impeded, it may be inferred that the requisite detachment is forced to adopt the more circuitous course of foramen ovale, left auricle, and left ventricular opening; and that the left auricle, and the forming mitral valve, by thus receiving employment, are ensured existence.

The constant diminution which so early commences in the relative size of the valve may be attributed to the development of the septum of the ventricles. As that advances, the exigency which has been represented may decrease, though it cannot yet be supposed entirely to disappear, especially whilst that partition is in its most recent and feeble state. For, so long as the right auricle continues to be, as it were, the centre of the circulation, and the ductus arteriosus continues to furnish a more direct route to the arch of the aorta by way of the right ventricle, in other words, until the close of the fœtal term, the unaided septum might be in danger of yielding before the greater momentum which would be necessarily induced at the right side, were there no check remaining at the site of the Eustachian valve. The natural action of the parts might thus still tend excessively to develop the right auricle at the expense of the left, as well as to restore the unity of the ventricles by the rupture or the gradual distension of their septum.

As a general expression, then, of the inference which has been here urged, it may be said that it is the primary office of the Eustachian valve to furnish the function, and so to originate the development, of the left auricle of the heart; and that it subsequently defends that function and that development until the changes which occur in the circulation at birth render such a chamber, for the first time perhaps, absolutely indispensable.*

The observations contained in the brief extracts which follow appear to me so nearly to have anticipated this conclusion, that I should scarcely have been thus backward in introducing them, had it not been with the hope of thereby making their value more conspicuous to the reader:—

* For the account of a case in which one auricle, with three ventricles, constituted the heart of *two* "perfectly-formed and well-developed" fœtuses united at the sternum, (extracted from the *Edinburgh Medical and Surgical Journal,*) see *Ranking's Half-Yearly Abstract*, No. VI.

"At six weeks the Eustachian valve forms a distinct" (of course not complete) "partition, behind which are the *orifices of both venæ cavæ and the foramen ovale.*" * * * "At two months, the right auricle has become sufficiently large to be examined with the naked eye. The crescent of the Eustachian valve describes a larger curve, and allows a freer communication between the anterior and posterior cell of the auricle. At two months and a half, the orifice of the superior cava is higher up, but still covered by the Eustachian valve. At three months and a half, there is but little of this vein covered by the valve, and now therefore the blood of the two cavæ mixes in the whole auricle, and not in its posterior cell only."*

The extent of the Eustachian valve, in its earlier phases, and its attitude toward the different orifices of the auricle, as thus presented to us, are perhaps too significant to be here enlarged upon with reference to the preceding argument. According to the same evidence, it may be further observed that the separation of the upward and downward currents assumed by Sabatier, cannot have place before the last of the periods cited. It may be supposed to gain place afterward as a subordinate function, which, so far as it exists, is without doubt requisite for the after distribution which that author has traced to it, and which must so evidently ensue. But other indications for such separation, while less distant, are perhaps equally imperative. That pointed out by Wistar would appear quite as much so as any that could be deduced from aught that we could *à priori* have assumed as to the necessities of the fœtal brain. Another we may hold to be such as is answered by the mere presence, in the left cavities, of the *quality* of blood which should be thus introduced there. By the supposition, a fluid approaching in its character to the arterial of after life, being offered to that incipient susceptibility which is destined to maintain the action of this side of the heart, applies its appropriate stimulus: this peculiar endowment of the left chambers, and the corresponding qualification in the nature of the blood which is thrown into them, continuing to co-operate and to improve together, the heart becomes duly prepared to meet and respond to the important crisis, at which an unadulterated fluid reaches it through the pulmonary veins.

It is very conceivable that, toward the end of the fœtal term, when the internal equilibrium and symmetry of the heart have become somewhat confirmed by the increased development and efficiency of its other parts, the main design which has been here ascribed to the Eustachian valve, now resolved into the mere protection of that equilibrium and symmetry, may be overtaken, or finally surpassed in importance, by such other duties as may thus, incidentally as it were, devolve upon it.

The subsequent imperfect and variable condition of the valve, it must be admitted, forbids the ascription to it of any constant function in the perfect

* Martin St. Ange: Prize Report to the French Academy of Sciences in 1832, cited in *Flood on the Arteries, &c.* London, 1839.

subject. Is it not possible that its persistent vestiges may have their use in assisting to maintain such disturbance of the blood in the right cavities of the heart as may be sometimes necessary to prevent coagulation in the cases of congestion which frequently occur, in health and in disease, from sudden and transient pulmonary obstruction?

ART. IX.—*Contributions to Practical Dermatology.* By SILAS DURKEE, M.D.
(Read before the Suffolk District Medical Society, Boston.)

Eczema Impetiginodes.—Alfred H., aged 67 years, day-labourer, small stature, feeble constitution, temperate habits, weight about 120 pounds. He gave the following account of himself. His disease appeared about thirty years ago, and for several years was confined to the hairy scalp and the face; and from his description I judge the case to have been simple eczema originally. After the lapse of some dozen years, the malady disappeared entirely from the head, and left no trace of its existence there except a partial loss of hair. Upon leaving the head, it broke out in various other places, sometimes on one spot, sometimes on another. He stated that he had spent most of his life in the interior of New York, and that he had done whatever his circumstances would allow for the amelioration of his complaint, which was considered to be a bad case of scrofula by the physicians who had prescribed for it.

He called upon me for medical advice on the 18th of December, 1848. Upon examination, I found that the disease embraced the whole of the neck, except a small portion of integument that covered the trachea. The skin presented a highly inflamed and excoriated appearance. In some spots it was covered with thin laminated scales; but the greater part of it was not defended by even such a covering. It was hypertrophied, and sprinkled over with numerous transparent vesicles and yellow-headed pustules. From this region there was an exudation of thin fluid, which produced irritation and smarting, and was a source of almost ceaseless torment to the patient. He experienced no little inconvenience whenever he attempted to move his head, especially in a lateral direction, as the skin could not be put upon the stretch without producing more or less pain. He was poorly clad; and another source of suffering to him was the exposure of the part to the attrition of the cold air. On each side of the neck he wore a pad of rags, which shielded the lower portion of the abraded surface, while it absorbed the moisture that was continually effused upon it.

Upon the shoulders, back, and abdomen, were numerous irregular blotches of thin crustaceous squamæ, varying in size from half an inch to two inches or more in diameter, some of them being in nearly a dry condition, while from the others the puriform matter that was discharged, required the parts to be covered with bits of rag or lint. The chest and shoulders were sprinkled over with a great number of isolated pustules, which had remained nearly stationary for a long period. They were much larger than is commonly seen in pure impetigo. They were likewise more elevated above the surrounding tissue than is usually the case in that eruption, and might easily have been mistaken for acne pustulosa.

Upon the pubic region the disease had existed for several years. It was originally simple eczema, without doubt, but had degenerated into the variety now under consideration. It had extended from the symphysis, and spreading upward and outward upon the lower part of the abdomen, had marked out for itself a broad triangular figure, and was a source of great discomfort to the patient. The laminated crusts upon this district were thinner than in most other places, and the natural pilous covering of the part rendered them less adherent. The disease occupied the whole of the scrotum also, and the integument of the inguinal folds and adjacent skin of the thighs. There were but few small pustular vesicles and but a trifling exudation in this region, which in several spots was perfectly raw and inflamed, as we see immediately after the removal of a blister. Upon the popliteal space of one leg was a patch as large as the whole of my hand, and consisting of an eruption partly vesicular and partly pustular, interspersed between flimsy incrustations, with here and there portions of red, shining skin, from which the scabs had been detached. The disease could here be studied in all its different phases. From beneath the scabs there was a discharge of thin puriform matter; and the patient was obliged to keep several thicknesses of rag secured to the part by passing a bandage round the knee. Locomotion of the limb was at times considerably impeded, and attended with no little inconvenience. A great portion of the integument covering the extremities was little else than an irregular patchwork of yellowish-brown incrustations, which, for the most part, were quite adherent, and partook more of the impetiginous character than those did upon the trunk of the body. From beneath some of them, semi-purulent matter was continually oozing out, so that the patient was obliged to do them up as well as he could in bandages.

It was interesting to notice the rule of uniformity which appeared to regulate the development of the eruption upon the corresponding portions of the surface; for instance, just at the insertion of the deltoid muscle of each arm, and extending upward, was a cluster of vesicular pustules, almost precisely alike in number, size, and relative position, one to another, as well as in the progress they had made in passing from one stage of maturity to another. The same symmetrical arrangement, as it may be termed, was manifest in various other instances. Upon the scapulæ were several groups occupying the same relative localities; so upon the forearms, about the shoulders, and lower extremities. This phenomenon may frequently be observed in the distribution of the pimples of psoriasis guttata, and other cutaneous affections; and its explanation is to be found, no doubt, in the fact that in those portions of integument that correspond to each other, there is an exact identity of anatomical mechanism in the structure of the primordial atoms of cells, nerves, blood-vessels, lymphatic vessels and other tissues, which, together, make up that complex exterior investment, the skin.

Nearly the whole of the surface covering the sacrum was marked by an indelible cicatrix with corrugations, the product of an impetiginous ulceration which had existed there several years before, and was not unlike the scar occasioned by a superficial burn. Upon the right hip there was a large irregular scar of like origin and aspect; and another commencing near the angle of the two or three lower ribs on the left side, and extending downward and forward three or four inches. The disease had left similar footprints of its former habitat on some dozen other places. It is quite probable that the eruption upon the places where the cicatrices remained was an impetigo unmingled with eczema; for, although both diseases are seated in the dermoid follicles, yet the permanent marks, such as are mentioned above, are rarely, if ever, seen as a sequence of any variety of eczema.

It is hardly worth while to describe more at length the different appearances, and the various intermediate stages existing between the elementary type and the final period of the disease; nor shall I attempt to state precisely what proportion of the entire surface was implicated; but I think it may be said with truth that nearly one-half of it was affected at the time the case came under my care. The submaxillary and cervical glands, and some other of the lymphatics, were swollen, and had been in that preternatural condition more or less from the commencement of the eruption.

Notwithstanding the amount of surface diseased, the patient had for the most part been able to do some light work with only occasional intermissions in the winter season. He stated that for a year or two before I saw him his general health had suffered more than it previously had from the constant annoyance which the eruption produced. He had a poor appetite, rather restless nights, costiveness, tongue red and cracked, general feebleness, and a small pulse at sixty per minute.

[Considering the duration of the malady, the extent of ground it covered, the age and other circumstances of the patient, as giving more than ordinary interest to the case, I invited several physicians and the students of the Tremont Medical School to see him before the treatment was commenced.]

Treatment.—Entertaining the erroneous notion that the use of animal food would tend to increase his superficial infirmity, the patient had for some time almost wholly abstained from it. He stated that his medical advisers recommended this course. But his debile condition at this time clearly indicated the propriety of putting him upon a generous diet; and he was advised, among other things, to eat freely of beef, mutton, milk, apples, oranges, &c. He was prohibited the use of pork and all kinds of shell fish. He was directed to keep warmly clad, and to wash thoroughly every night in soft warm water and soap. His poverty did not enable him to take the ordinary warm bath. At bedtime he was to use the following ointment: ℞. Unguent. aq. rosar. ℥iij; Iodid. sulphuris ℈ij; Ol. bergamot, Ol. lavandul., āā q. s. M. For internal use: ℞. Syr. sarsa. comp. ℥iv; Iodid. potassæ ℥iv. M. Dose, a teaspoonful in a wineglass of cold water morning and night for one week; afterwards take a teaspoonful three times a day. Keep the bowels open with syrup of senna *pro re nata.*

February 1, 1849.—Patient called to-day, it being about six weeks from his first visit. Said he had followed the directions faithfully. Appetite quite good; bowels easily regulated by the senna; his health had improved considerably; disease of the skin nearly gone. The integument so recently covered with large blotches of scaly incrustations, &c. looked red and shining, but otherwise it was nearly in a normal state. There were some six or eight spots covered with lamellar incrustations, which remained much in the same condition as before any application had been made; but no new eruption had come out. The bandage round the knee, and the folds of cotton cloth being no longer needed, were laid aside. The ointment was altered to the strength of a scruple of the iodide of sulphur to the ounce, and to be applied night and morning to the few remaining places which had not yet healed.

March 2, 1849.—Patient called. He stated that, after his visit in February, the eruption manifested a disposition to reappear in some of the old places. This new eruption was strictly eczematous, and may be considered as factitious, for it was due in a great measure, if not wholly, to the irritation produced by the strong iodine ointment; and instead of that, the following was used upon the new crop of vesicular patches with good effect: ℞. Ung. aq. rosar. ℥i; Plumbi subcarbonat. ℥i; Cretæ præparat. ℈ij. M. Apply

it freely three or four times a day. The iodine ointment was still applied upon the few places which as yet remained nearly unchanged by what had been done to them. The improvement, with the exception just named, continued to advance quite satisfactorily; and it was evident that the abnormal habit of the cutaneous vessels was nearly broken up. Instead of the iodide of potassa, which the patient had taken now about ten weeks, the arsenious acid was substituted as in the following pill, which I have prescribed in various cutaneous affections for several years in preference to any other mode of administering arsenic: R. Oxid. arsenic. alb. grs. iv; Pulv. rad. glycyrrh. ʒss; Pulv. piper nigri grs. xxv; Extr. conii ʒij. M. ft. pil. No. lxiv. He took one pill every morning directly after breakfast for thirty days; then omitted them by my directions for one week; then commenced again and took them as at first until they were all gone. [In cases where it is desirable to continue the use of arsenic for a long time, the extract of conium in combination, as in the above pill, has a tendency to prevent any gastric or intestinal disturbance which the arsenic might otherwise produce. A small quantity of opium is sometimes used as an adjuvant, but its constipating quality is an objection, and on this account the conium is to be preferred. I have often given this pill for six or eight successive months, with occasional intermissions of a few days; and sometimes two pills a day for two or three weeks, and then reduced to one pill daily. They should always be taken immediately after eating. See Dr. Green's *Compendium of Cutaneous Diseases;* also the *New York Medical Bulletin* for May, 1844.]

The patient repeated his calls pretty regularly, every two or three weeks, until the end of May, by which time his condition was in all respects so far improved that he had no need to consult me. Now and then he reported a trifling relapse or new outbreak of eczematous eruption; but it was of very slight character, and always yielded to the lead ointment in a few days. I occasionally meet the patient in the streets, and he uniformly replies, in answer to my inquiries, that he remains free from his malady. From the beginning of my attendance upon him, he has had a *carte blanche* to call upon me whenever he had occasion, and doubtless he would have renewed his visits had his ancient enemy again made its appearance.

Jan. 1, 1851.—Met the patient to-day in the street. Informed him of my intention to report his case to this society, and asked him if he still remained free from the disease upon his skin. He replied in the affirmative, and said, also, that he had gained ten or twelve pounds of flesh since his cutaneous difficulty ceased to trouble him.

Remarks.—Notwithstanding the morbid condition of the skin had existed for a long time in the foregoing case, yet it admitted of an easy cure; and, although the malady belonged to a class essentially inflammatory, it is more than probable that a reducing plan of treatment would have resulted prejudicially. It can scarcely be doubted that the disease was perpetuated and aggravated in consequence of the enfeebled vitality of the subject; and hence the curative indication was directed mainly towards infusing a more vigorous tone into his constitution, while the applications, addressed directly to the local affection, were mostly of a stimulating character. The decided impetiginous quality which preponderated in the case while it was under my care shows why this local treatment was borne so well. In any other form or

variety of eczema it would have been injurious, except in some chronic case where but a small spot of skin was involved.

During the last ten years, I have almost daily seen individuals, especially females, who have been striving with utmost diligence to rid themselves of some superficial blemish, by a long process of what may be termed semi-starvation; but not one in fifty of these persons ever obtained the reward which would have been so welcome to them, and which their spirit of persevering self-denial would seem to have merited. Some years ago, a young lady of my acquaintance had a pustular eruption of moderate severity upon her face, and, in the hope of annihilating it, she abandoned the use of meat, butter, and most other substantial articles of food for two years; she did not allow herself, of our native fruits, so much as an apple or a pear in that time. She lived on potatoes, bread, rice, tea, and coffee, with sugar and milk. The result of this experiment was that she lost some flesh, and all her hope, but none of her malady. Scores of such cases might be related.

As it regards diet in the treatment of cutaneous disorders, that is undoubtedly the most appropriate which is calculated to secure a healthy standard of the *vis vitæ*, and on no account should any dietetic habits of an opposite tendency be allowed, for the general health of the patient is paramount to any partial evil that may be upon him. There are some articles of food that should be withheld. I have for some years entertained the belief that the use of pork and shell fish was injurious to persons labouring under any serious form of skin disease. Some dermatologists not only forbid their patients the use of the articles just mentioned, but also all kinds of wild game. We know that the Hebrew tribes, who, from climate and mode of life, were peculiarly liable to certain cutaneous maladies, were not allowed to eat pork, nor any kind of fish that had not fins; and it is altogether probable that this prohibition, in addition to its religious import, had reference to their physical welfare.

I will here mention a case which came under my immediate observation some months ago. A gentleman, somewhat dyspeptic, undertook to improve his digestive powers by the use of the best kind of smoked ham three times a-day. He ate freely of it, the fat and the lean, sometimes cooked, and sometimes raw, and used no other animal food for about nine months. He had the fat and the lean parts cut up and minced together very fine. It suited his taste, and, so far as he could judge, his stomach. He took it with brown bread toasted. His drink was water and milk. He gained flesh, and his general health improved quite satisfactorily; but at length he got disgusted with his monotonous bill of fare, and was obliged to give up his bacon entirely. In the mean time, he began to be troubled with boils. They first appeared about both knee-joints; then higher up on the thighs; and, finally, on the body and upper extremities. He had four in the right axillary space; two at one time. They continued to form in successive crops to the number of forty in four months. They finally disappeared without the aid of medicine. The gentleman attributed them, and I think correctly, to the great

quantities of bacon which he took. But the story of his calamities is not yet finished. After commencing upon his new plan of living, he had a pretty sharp attack of eczema upon the pubic region. It was removed in about three months by topical applications, and by his return to a more miscellaneous diet. Before his excessive use of bacon, this man had always been exempt from all cutaneous eruptions.

It is not uncommon, both in eczema and impetigo, for the lymphatic glands in the immediate neighbourhood of the local difficulty to be more or less enlarged, and to remain in that condition throughout the whole period of the cutaneous lesion; and this glandular tumefaction has often been erroneously regarded as decisive evidence of a strumous diathesis in the patient; and thus the word scrofula has become, as it were, a sort of nosological scapegoat for maladies which are entitled to a more appropriate and definite place in the nomenclature of diseases. We might with equal reason infer that every abdominal enlargement in the female was a case of pregnancy, or that every sore nipple was a cancer of the breast, as to suppose that those cutaneous affections which are attended with glandular engorgements, such as existed in the case we have been considering, were necessarily of a scrofulous nature. It seems to me that we see here the effects of the law of sympathy, and nothing else. The same condition exists in the axillary glands from the irritation produced by a blister of flies upon the arm, or by the vaccine virus; so in the process of infantile dentition, the neighbouring lymphatic glands sometimes swell to an enormous size, and the inflammation terminates in an abscess. Various other instances, showing a sympathetic participation of the lymphatic glands when other structures are primarily involved in disease, might be adduced. We know nothing of this law except by its effects. We see its operation and its ambiguity everywhere in the animal economy, just as the natural philosopher witnesses the presence and the power of the universal law of gravitation in the physical world about him. He can reason and judge of this principle only by its effects. So also in regard to light. We may ask him, what is light? is it a material substance in nature, or is it only a property of matter? Human science is not yet prepared to answer. And if the medical man, in his study of some of the deep principles of animal life, occasionally finds himself in terra incognita, he is still on equal ground with the natural philosopher, who, although surrounded on every side by living floods of light, is nevertheless, in regard to that light, in the regions of utter darkness.

The following case is in almost every particular in perfect contrast with the preceding one, so far as the appearances of the two, when they came under my care, were concerned; and to the practitioner not familiar with the various modifications which time and other circumstances produce in cutaneous diseases of the same family, it might seem almost incredible that the two belonged to the same class, and had also a common elementary form or type by which the relationship could be recognized and established; yet such is the fact.

Eczema Mercuriale. Tuesday, May 15, 1849.—Was called to visit Miss C., aged nineteen years, of full, robust habit, light complexion, blue eyes, delicate skin.

About three weeks before I saw her, she took the advice of a distinguished physician relative to a tumour which appeared in the right breast in September, 1848, and had gradually increased.

With a view to disperse the tumour, the application of "Emplastrum hydrargyri cum ammoniace quatuor digitorum" to the breast was prescribed, with directions for it to remain on the part three weeks. It remained on twelve days, and then fell off of its own accord, having lost its adhesive quality; and a new one of the same kind and size was applied in its stead, and remained on until the day previous to my visit. On Sunday, the 13th of the month, a minute vesicular eruption, attended with great heat, redness, smarting, and pruritus, appeared upon the diseased breast and adjacent parts. On Sunday night, patient got no sleep on account of the rapid increase of the eruption and its accompaniments, which had become still more severe and annoying. On Monday, the 14th, in addition to the troubles already mentioned, the face began to swell, and the eruption continued to spread in every direction. The patient and her friends became somewhat alarmed, and again consulted the physician, who directed the plaster to be removed, and a bread and milk poultice to be applied in its stead, and a teaspoonful of carbonate of magnesia to be taken once in three days.

Upon examination, I found the entire surface of the body, neck, and superior portion of the extremities, exhibited an intense redness, and was covered with extremely small vesicles, thickly crowded together; in some spots upon the upper part of the back, the eruption was so minute that it was scarcely perceptible to the naked eye, although distinctly visible with a common pocket magnifier; skin hot and dry; face a good deal swollen, and presented a rough mottled aspect, but had less eruption and efflorescence upon it than the trunk and limbs. Patient complained of pain in the head; tongue red and moist; mouth and throat sore; deglutition painful; no salivation, or mercurial odour from the breath; hands and feet cold; bowels constipated; pulse eighty, and moderately full.

Directed the patient to take an emollient bath, consisting of twenty-five or thirty gallons of warm water, with four or five quarts of thick oatmeal gruel to be added. She remained in the bath until a sensation of faintness was induced. This was according to my directions. After the bath, she took a small dose of sulphate of magnesia. The surface was kept wet most of the time for twenty-four hours with the following lotion: Emuls. amygdal. ℥xvi; Liq. plumb. subacetat. ʒiij; Acid hydrocyanic. ʒiij. M. The emollient bath to be repeated again in the evening at eight o'clock. For nourishment and drinks, arrowroot, rice water, toast water, orangeade, lemonade, *ad libitum*. The sulphate of magnesia operated twice.

On making my visit on the fifth day of the disease, found the patient had passed a bad night, and got but little sleep. The only relief she experienced was while taking the warm gruel baths. She stated that while in them she was comparatively comfortable. She suffered much from nausea at the stomach; great prostration and sense of suffocation. The face was dotted over with vesicles and greatly swollen, so much so that the eyes and even the eyelashes were entirely concealed from view, and the features of the countenance obliterated. She complained of great pain and soreness in the face and head, and about the throat and fauces, especially when in the recumbent posture, and on this account she preferred the best position she could find in an arm-

chair rather than to be in bed. In fact, such was her dread to be placed in a lying posture that she scarcely made trial of the bed for nearly twenty-four hours previous to this visit. The tongue was moist and red, and slightly swollen. The whole vocal apparatus was in such a condition, from the inflammation and soreness, that she could not converse, except to answer questions with the utmost brevity. The skin was intensely hot and dry. The eruption now occupied the whole cutaneous surface, except the hands and feet; and the vesicles, which first appeared upon the chest and back, had increased in size, and contained a lactescent fluid, constituting the *pustular vesicles* of Cazenave. At this time, also, the patient began to be annoyed by a most troublesome pruritus, burning pain, and inflammation about the rectum and pudendal region—the latter being greatly swollen. The discharge of urine from the fourth day of the attack until near its termination was small in quantity and attended with some dysuria. I may remark here, also, that throughout the whole course of the disease the thirst was quite moderate; and the pulse, which was small and feeble, did not at any time reach beyond 90 per minute.

The warm emollient bath was ordered for the patient as soon as it could be prepared, and was to be repeated again in the evening and the next morning. She was to remain in as long as possible without fainting. Continue the use of the hydrocyanic acid lotion. Warm fomentations to be constantly applied to the rectum and neighbouring demesnes. Ten grains pulv. ipecacuan. comp. at eight o'clock in the evening, and repeat the dose, if necessary, in three hours. ℞. Spirit. nit. dulc. ℥ij. Put three teaspoonfuls into three gills of gum water, and let her drink it in the course of the day. Let her drink freely, also, of elm gruel, rice water, and the like. Jug of hot water to the feet. Keep chamber cool and well ventilated.

On the evening of the sixth day of the invasion, I again saw the patient. Found her bolstered up in bed, in which attitude she had been most of the time since my last visit. She insisted that it was the only position in which she could obtain any rest, on account of the pain in the head, swelling and distress about head, face, &c. The Dover's powder gave her tolerable rest the previous night. She took a small dose of sulphate of magnesia, which produced one dejection. Says she derives more benefit from the soothing effect of the warm gruel baths and fomentations than from all else done for her. A profuse salivation from the mouth commenced in the early part of the day; numerous vesicles upon the ears, face, neck, chest, and shoulders had broken, and from these a profuse, ichorous discharge was poured out; also from the meatus auditorius, the mucous membrane of the nose, eyes, labia pudendi, and rectum. The acrimonious effusion produced a most uncomfortable smarting and excoriations, wherever it came in contact with the inflamed integument; and, as a consequence, her sufferings were greatly aggravated. The eyes were still buried in the tumefaction of the lids, the pain and irritation in which were as great as are witnessed in an attack of acute ophthalmia. She continued to have nausea, except when asleep, without scarcely any mitigation or intermission, and great coldness of the extremities, unless prevented by the application of artificial heat. She had at this time more distress in the head, chest, and throat than she had hitherto experienced.

From the commencement of the serous exudation from the skin, and from the mucous outlets, until its discontinuance, a fetid odour from the patient, closely resembling the exhalation from putrid fish, was very perceptible. The atmosphere for several feet around the bedside was impregnated with it. The effluvium was entirely distinct in character from that produced by ordi-

nary ptyalism. The true mercurial fetor of the breath was not present in the least degree at any time during the patient's illness. The use of the Prussic acid lotion did not appear to do any good, and it was discontinued, and a decoction of wheat bran, with a small quantity of liquor plumbi subacet., was substituted for it. The proportions were—decoction of bran ℥xvi; extr. plumbi ʒij. M.* This was applied with soft linen rags upon the whole surface of body and limbs several times a day. The compound infusion of roses was directed to be used as a gargle every two hours during the day.

At my visit on the seventh day of the eczema, I found that during the previous night the patient got some sleep from the opiate which she took. Constitutional symptoms much the same as at last report; but some alteration had taken place in the appearance of the skin. The scarlet red tint of the integument about the shoulders, neck, and face began to assume a dusky hue, and the eruption upon these localities became confluent, and formed into circular groups or discs, leaving intermediate spaces of a lighter and more natural colour, and imparting to the surface a general aspect not unlike rubeola. Nearly simultaneously with these changes, the minute vesicles on the extremities increased in size and numbers; and in the course of twenty-four hours their limpid contents passed into an opaque, sero-purulent fluid. Treatment continued.

On the following night was called up at 1 o'clock to visit Miss C. She was bolstered up in bed, and was suffering with excruciating distress in the face, head, rectum, and other localities. The acrid secretion trickled down upon the face like tears upon the cheeks of a weeping child; and from various other districts it oozed out more than ever upon the highly sensitive skin; and from this circumstance alone could I account for the sudden exacerbation of symptoms that so tormented the sufferer. The pulse was ninety per minute, and small, and, for the first and only time, intermittent. The condition of the mouth and throat remained about the same as at the two last visits.

The temperament of the patient was by no means of a nervous character. She was calm; and her fortitude in this season of her agony showed "how sublime a thing it is to suffer and be strong."

About nine o'clock the previous evening, she took ℈ss of Dover's powder, but did not experience its usual anodyne effect. The family happened to have some camphorated tincture of opium, and I gave her ʒiss in orange-water. As a topical application, Goulard's extract of lead, a teaspoonful to about five gills of warm water. The patient was very much relieved in about half an hour, and fell into a quiet sleep, which continued for several hours. The disease had now reached the Ultima Thule of its violence. In the course of twenty-four hours the symptoms all changed for the better, and so continued to the last.

The final stage of the disease was not characterized by any circumstance different from what occurs in other varieties of eczema. The serous discharge

* The translator of Cazenave mentions in a note that he once saw a person with this remarkable variety of eczema rubrum, as he terms it, and that the greatest benefit was derived from the use of the scalded bran. As I have frequently been asked how it should be prepared, it may not be out of place to say that a good way to do it is to turn on two quarts of boiling water upon one quart of the bran; stir it for ten or twelve minutes, when it will be fit for use. As a soothing application, it will be found useful in other varieties of eczema, especially in the acute stage. It may be used with the utmost freedom on any place or person, and at as high a temperature as can be borne conveniently. When applied quite warm, it is more agreeable to the patient than when cold. Rags wet with it may remain on the part.

rapidly diminished in quantity, became concrete, and formed into thin, soft, laminated incrustations. These were cast off from many patches in large flakes, and other incrustations were formed and detached in rapid succession. They served, for the time being, as a useful covering and protection to the subjacent tissue, which had been the seat of such a high degree of inflammation, and which required a period of several weeks for the full and perfect restoration of its normal structure and functions.

The eruption appeared one day later, and was somewhat less copiously developed upon the arms and legs than upon the trunk of the body and the face; and it appeared one day later upon the dorsal aspect of the hands and feet than it did upon the superior portions of the extremities; and in these particulars it seemed to be governed by laws analogous to those which we witness in the external manifestation of measles. The contents of the vesicles evolved upon the extremities did not burst through their epidermic envelop, except in those which attained comparatively a large size, the fluid in the smaller specimens being absorbed. The vesicles seated on the other districts poured out their contents in a very profuse manner for five or six days, so that the eyes, ears, face, neck, chest, &c., were constantly bedewed with the exudation; and this circumstance contributed materially to augment the patient's sufferings, which at times were very intense.

The tarsal glands were somewhat inflamed for a few weeks. Many of the hairs fell out from the edge of the lids, but were reproduced in due time. By the thirteenth day from the first outbreak of the eczema upon the chest, the patient had so far recovered that my visits were discontinued; and she has enjoyed good health from that day to this.

Remarks.—The first observation that suggests itself in connection with the history of the foregoing case is that the constitution of the patient was endowed with some peculiar idiosyncrasy that rendered the action of mercury highly poisonous to the system. What this idiosyncrasy was we know not, nor of its presence could any one have had either knowledge or indication *à priori;* and of course no possible blame should be attached to the medical adviser who recommended the application of the plaster. Probably not one individual in a thousand would show such a remarkable susceptibility to its action as did the unfortunate lady in this instance. It seems pertinent to state that the father of this patient has been under my professional supervision more or less for several years; and on one occasion he was salivated by the use of some four or five blue pills taken in so many days by my direction. That his constitution participates largely in the scrofulous diathesis, in the proper acceptation of the word, I know. He has been the father of five children—all daughters, and all inheriting the strumous taint. One of them died about a year since with phthisis, under the age of eighteen, and another, a little older, is now in the very last stage of that disease.

If I mistake not, it is the general opinion among the medical profession that individuals of scrofulous temperament do not tolerate the use of mercurial preparations so conveniently or advantageously as those whose system is exempt from the peculiarity in question. I certainly can add the testimony of my own experience of twenty years in support of this idea.

Strictly speaking, it may be said that every medicine, and every other substance taken into the system, whether through the skin, the stomach, lungs, or any other medium, may be regarded as a poison, unless its natural properties are adapted to supply *material* for the nourishment and growth of the animal economy; but of the *modus operandi* upon the tissues and organs, we know literally nothing—not even of a grain of ipecac., whether its specific action be displayed upon the skin or the stomach. We see the effect, the result; but I am not aware that we can, with all our attainments in medical philosophy, explain or comprehend the workings of the machinery producing this result. And in the case before us, all that we can claim to know is that a certain poison was taken into the system through the agency of the cutaneous absorbents, and that another nature employed another system of vessels, which we call the excernents, for the expulsion of that poison.

To a practitioner who has never had the opportunity to watch the progress of a severe case of mercurial eczema, it may seem that, in describing the condition of my patient, I have sometimes indulged in language of extravagant hyperbole, not warranted by her symptoms or sufferings; I beg, therefore, to submit a sentence or two from the dermatologists who have particularly described this variety of eczema. Dr. Green says: "In the severer forms of the disease characterized as *febrile* or *malignant*, which seem generally to be induced by persistence in the use of mercury, after the eruption has once made its appearance, the vesicles are larger, and evolved amid extreme constitutional disturbance, violent febrile symptoms, great heat of surface, and swelling upon the parts upon which it is about to appear. The eruption is of a dusky red or purple hue, and the vesicles, when they burst, which they do before long, discharge abundantly. The cuticle, in bad cases, is even detached in large flaps, and extensive excoriated and bleeding surfaces are then exposed. The pain which accompanies the disease is excessive." Professor Wilson remarks that in the most severe form of the affection, namely, in that produced by a continuance in the use of mercury after the eruption has appeared, the face is enormously swollen, the eyelids closed, the throat tumefied and painful, the colour of the efflorescence of a deep purple, and all the symptoms aggravated.

Eczema mercuriale is a rare form of cutaneous affection. Besides the case we have been considering, I have never seen but one. It was comparatively mild, and was induced by six or eight grains of the submuriate of mercury, taken daily in grain doses in combination with squills and tart. antimony for a pulmonary affection. The whole skin was involved in the eruption, which lasted about twelve days. The patient was a female about twenty-five years old. She had no ptyalism, nor was there an emanation of the fish-like odour in her case. The serous fluid of the vesicles was not discharged upon the surface at all, but was conveyed back into the system by the absorbents; and I regard this as the reason why no peculiar smell was produced in this case.

It has already been stated that the peculiar odour, resembling rotten fish,

was coeval with the discharge of the fluid from the vesicles, and is to be attributed in part, perhaps, to the decomposition of that fluid; but I must venture an expression of my belief that the phenomenon in question was due mainly to the influence derived from the mercury which had been imbibed into the system. I cannot persuade myself that the smell was accidental merely, dependent on decomposition or putrefaction; although I confess this thought was uppermost in my mind for a time. But the probability in regard to the mercurial origin of the odour derives strong confirmation from the case cited by Professor Wilson. The offensive odour which was poured out from the abraded dermis is compared to putrid fish.—(Wilson on the *Skin*, p. 169.) Dr. Green, in his *Compendium on Cutaneous Diseases*, relates an instance of mercurial eczema which came under his care after the patient had been ill with it ten weeks. The case had then become chronic. Its early history is not given, and no mention is made of the fact under consideration. In nearly all instances of eczema, especially where an extensive surface is involved, and where the contents of the vesicles are poured out freely upon the integument, it is truly "a sickly-smelling discharge;" but the odour is as unlike the one we are speaking of as is the perfume of the rose to the poppy.

Another pathological problem connected with the specific action of the mercury in the foregoing case is worthy of consideration, and that is, that although a most active salivation from the mouth was kept up for some days, the fetor, such as is present in ordinary cases of ptyalism from the internal exhibition of mercurials, was entirely wanting. The breath of the patient was thoroughly tested in reference to this matter by several medical gentlemen who saw the case at different times, and the result was as here stated.

It is well known that diabetes is accompanied with a hay-like scent or odour issuing from the body of the patient, and a similar sort of halitus is exhaled from the lungs.* In the hectic fever of phthisical subjects there is an odour like acetous acid almost invariably prevalent in the atmosphere of the apartment, and it requires no little perfumery to neutralize it. In typhus, also, the experienced and observant practitioner would rarely mistake the disease, even if he were led blindfold to the bedside, and relied upon the impression made upon his olfactories, as the only medium through which to form a diagnosis. A still stronger illustration of the idea before us may be found in the mouse-like smell which is always exhaling from the head of a child diseased with porrigo favosa. In all these instances, and in others that might be adduced, there is an exhalation from the person which is *sui generis.*

Although upon the spot where the eruption first appeared, the epidermis was thinner than in some other regions, yet it must have materially hindered

* Good's Study of Med.

the process of cutaneous absorption. And it is a curious fact that a plaster covering so small a space, and composed as it was of two ingredients, by no means in a state of minute division compared with what they were susceptible of, should have parted with a quantity of its morbific properties sufficient to produce such a violent shock upon the whole system. The dose was certainly too small for appreciation; and the case affords a good illustration of the absorbent power of the skin by what is termed the *iatraleptic method*, even under circumstances unfavourable for such action.

Boston, *January*, 1851.

Art. X.—*On the Topical Application of Chloroform.* By John H. Rauch, M. D., *of Burlington, Iowa.*

While I was attending the clinical lectures at the Pennsylvania Hospital, during the winter of 1848 and 1849, the attention of the class was called by Prof. Wood, who was then the attending physician, to a case of facial neuralgia, which had proved rebellious to the ordinary remedies. In this case, the Prof. prescribed the topical application of chloroform, with the most decided relief to the patient, at the same time stating that he had been led to do so by the favourable report of Dr. Hays, who had made use of the application in a similar case with the most happy results. This was the first time I witnessed the external application of chloroform for the relief of neuralgia. During the summer of 1849, I had various opportunities to test its merits in relieving pain of that character, the results of which were so satisfactory that I am induced to enumerate some of the most striking cases.

Case I.—A young lady was suffering acutely from a violent neuralgic headache. A flannel cloth was saturated with chloroform, and applied to that part of her head most affected; the pain ceased almost instantaneously.

Case II.—An elderly lady had been suffering, in a most excruciating manner, from a neuralgic pain in the left shoulder, and side of the neck. The application was made as stated in the last case, and she was relieved as if by magic. She had no return of the pain.

From that time until the present, I have almost daily made similar applications, with nearly the same result. In some instances the relief did not prove permanent, but all that was necessary in such cases was a repetition of the application. Generally speaking, I found that it gave relief to all headaches not dependent upon a derangement of the *primæ viæ*, and to all pains not very deep seated. When first applied (so as to prevent its evaporation), it produces a cooling sensation, followed by a feeling of warmth, which is

gradually increased to a sense of burning and smarting, which, however, is easily bearable. It produces redness of the part to which it is applied, which is speedily dissipated upon the removal of the cloth, leaving the skin harsh and disagreeable.

Owing to the sudden evaporation of the chloroform, its transient effect, and the roughness and harshness of the skin that were produced by its application, the idea of incorporating it with some other substance that would obviate these objections to its external application occurred to me. In olive oil, I found this desideratum. To effect a more minute union of the oil and chloroform; I added aqua ammoniæ, which produced a beautiful milky white emulsion, nearly similar to the volatile liniment, but not so consistent and white. The addition of the aqua ammoniæ seems to add to the efficacy of the chloroform; at least its counter-irritant effect is increased by it. So far, all succeeded admirably, and it only remained for me to give it a trial; an opportunity offered in the person of an "old lady," upon whom I had operated for cataract, who, in consequence of being compelled to remain in a recumbent position, after a few days complained of a severe pain in the small of her back. A woollen cloth was saturated with the liniment, and applied by means of friction; in a few moments the pain ceased and never returned.

Besides the advantages already stated of this preparation, it is not so expensive as the chloroform alone, and according to the result of my experience it is more efficacious, giving relief sooner, and its effects are not so volatile. The proportions in which I employed the different ingredients at first were equal, but afterward I graduated them, according to the effect desired. When I desired a powerfully counter-irritant effect, I increased the quantity of ammonia and chloroform, and diminished the oil, and *vice versa*. In some instances I have been deceived as to its results, owing to the chloroform being of an inferior quality, and the aqua ammoniæ of not sufficient strength. Care must also be taken that the oil is not rancid, as it may nauseate, especially when it is applied to allay nausea and irritability of stomach. I applied it by means of a woollen cloth, folded in such a manner that the internal folds were completely saturated with the liniment, while the external were dry, thus preventing its evaporation. Oil silk cloth has been recommended by Dr. Hays to be placed over the saturated cloth, when chloroform alone was applied, but this is not always at hand, thus making the cloth prepared in the manner stated preferable. Immediately after the cloth has been saturated with the liniment, it is to be applied. At first it necessarily feels cool, followed in a few moments by a sense of warmth, which increases until it smarts and burns so severely that it can with difficulty be borne, continuing to increase for the space of about ten minutes, when it gradually diminishes, and is followed by a pleasing coolness, and, if there was pain in the part, with relief of it. When the application is found to cause more pain than is agreeable to the patient, it can be removed, or its position changed. Upon removal of the cloth, the part is found red, and in many instances vesication takes place. When it is

desirable to produce mere rubefaction, it is sufficient to apply it by friction, or to allow the cloth to remain but a short time, as vesication will take place if allowed to exhaust its strength. This is not always the case, as it will depend to what part of the body, and to whom it is applied, the skin being more delicate in some than in others. If the pain should continue, it will be necessary to repeat the application. It will be seen that it combines a rubefacient and powerfully counter-irritant effect with an anodyne. Where a speedy effect is desired, it is far more beneficial than either a sinapism or blister, and is easier of application, especially in children, where great difficulty is experienced in retaining a sinapism or blister a sufficient length of time to produce the desired effect, in consequence of their screams and endeavours to remove them. The relief of the pain, and the slight inhalation of the chloroform escaping from the cloth, produce such a pleasing sensation, that I have often seen patients fall asleep immediately after its application. Having thus detailed its physical effects, I shall proceed to relate some of the instances in which I have beneficially employed it.

Case III.—This was a case of sciatica of long standing, in a patient about forty-five years old, who had become quite emaciated from long-continued suffering. He could with difficulty dismount from a horse he had been riding, in consequence of pain. After the application of the liniment, he was relieved from pain, attended to some business, and remounted his horse with greater ease than he had dismounted. I do not know whether it gave him permanent relief or not, as I have not seen or heard from him since.

Case IV.—This was also a case of long standing, in an old dyspeptic, who had occasionally suffered severely from gastralgia. The liniment was applied, with almost instantaneous relief. What was singular in this case is that the pain never ceased when the usual remedies were applied, but did so upon his drinking from Oss to Oj of warmed milk.

Case V.—Having been called to the country to see a woman who was suffering from pneumonia, with a full bounding pulse, great pain, and difficulty of breathing, I decided upon bleeding her, and, while making preparations for so doing, I found that the fleam of my lancet was broken, and, not having a thumb lancet with me, was prevented bleeding her. Having some of the liniment with me, it occurred to me that it might relieve her pain. I applied it to her chest for about fifteen minutes, repeating the application several times until vesication had taken place, and to my satisfaction she soon breathed more freely and easily, and before I left her was free from pain, her pulse became more natural, and in a short time she fell asleep. This, with a purgative, was all the treatment that was found necessary. I left some of the liniment with her, so that she might have it applied in case the pain should return, but this it did not.

The cholera breaking out here in the early part of the month of July, I was impressed with the idea that the liniment might be beneficially employed as an external stimulant, counter-irritant, and anodyne. I made the suggestion to my friend Dr. Lowe, who concurred with me, which resulted in our determining to give it a trial the first opportunity that should offer.

Case VI.—The subject of this was a child seven years old, who was in the collapse stage when we were called to see her. Her pulse was so indistinct that it could not be counted, and was easily compressed; the skin was shrunken, and covered by a cold perspiration; her extremities were cold, with some warmth of body; the countenance presented a peculiar ghastly appearance; the eyes were glassy, and surrounded by a blue circle; the lips were livid, with occasional cramps and pain in her stomach and bowels, and vomiting. We applied the liniment over her body and extremities by friction, and saturated a cloth with it and placed it over her stomach and abdomen. This relieved the pain and vomiting. In about half an hour after the first application, the pulse became more distinct, so much so that I could accurately count it, warmth returned to the extremities, and there seemed to be some hope: at least it encouraged us to persevere. The benefit that she seemed to derive from the liniment was only temporary, however, and, several hours after, she died. Whether the favourable symptoms I have here recorded were caused by the liniment, the medicine that had been administered internally, or a reaction that was the precursor of death, I am not prepared to say. There was, however, something gained; the case was apparently a hopeless one when first seen; we had at least the satisfaction to know that her sufferings were relieved by it. In this case I first observed the pain over the region of the heart, which I found always a fatal sign; the suffering from this was also relieved by it. The mother of this child died, after an illness of eight hours, the day previous to the child's being taken.

Case VII.—An elderly gentleman, a relative of the child last mentioned, who had been nursing it, was seized with purging and cramps early the next morning after the death of the child, and had had a number of dejections before he was seen. Cartwright's prescription was given him, which for a time allayed all his symptoms. Toward noon he was seized with great pain and sickness of stomach. The liniment was applied over his epigastrium, and in a short time he was relieved. The following powder was also given him every half hour: ℞. Morphia gr. ¼; Camphor grs. ii; Calomel grs. ii. He speedily recovered.

Case VIII.—A young married lady was seized with a violent pain in her stomach and bowels, and diarrhœa. She was greatly prostrated by the excessive discharges, and suffered intensely from pain and sickness of stomach. The liniment was freely applied, with relief. The powder of morphia, camphor, and calomel was given her every half hour, and she recovered rapidly.

Case IX.—A young man, during the night, was taken with diarrhœa and cramps. I saw him a few moments after; applied the liniment, which gave him almost instantaneous relief.

Case X.—An elderly gentleman, who had been attending upon a friend in an attack of cholera, complained of pain in his bowels and diarrhœa the day previous to his being attacked, and had taken some medicine. I saw him, the evening previous to his being attacked, in a small social circle; he seemed to be as pleasant and lively as usual. At 3 o'clock, A. M., next morning, I was called to see him, and found him in the collapse stage; he had had but two dejections, and emesis had taken place but once, accompanied by occasional cramps and pain. I applied the liniment freely over his stomach and abdomen, gave him the powder already spoken of, and administered the enema. In a few

moments, he said he felt better, and I had not been with him more than twenty minutes, when he said he was free from all unpleasant symptoms, and that I should return to bed. His pulse and skin were in a better condition than when I first saw him. He still persisted in my going to bed, and in saying that he felt perfectly well. To gratify him, I left him for a few moments, but soon returned to administer the powder. I found him as I had left him, with no sickness of stomach, no pain, and no inclination to defecate, but soon found that there was a change taking place, and that he was sinking, his skin again becoming cold and shrunken. The liniment was assiduously applied all over his body and extremities by means of friction; brandy, ammonia, and capsicum were given him; he was placed in a warm bath, bricks heated and placed in bed with him, and all manner of internal and external stimulations that I could possibly think of were employed. It seemed to produce little effect until 7 o'clock, when he appeared to rally; his pulse became more distinct, warmth again returned to the extremities and surface of the body, which continued to increase until 12 o'clock, M., when he again began to sink until he died, during the afternoon. Hopes were entertained of his recovery from 7 until 12 o'clock; he, however, during this time, said he would not recover, was perfectly calm, did not seem to be alarmed, conversed with a clergyman about his spiritual affairs, and dictated a will. He had scarcely finished his will when he began to sink, and in an hour afterward began to complain of the peculiar pain over the region of the heart that I have described before; this was also relieved by the liniment. After I saw this, I ceased to administer medicine. I asked him whether he suffered: he answered, No. Said he felt chilly, and wished to sleep. He would fall into a doze, and when aroused therefrom, would exclaim, "Just let me sleep!" And thus he died without suffering—falling, as it were, into his final sleep.

This case goes to prove the fallacy of the assertion that, if you check the discharges, you will check the disease. In this case calomel was given in two grain doses every half hour, until he began to sink a second time. All medicine that was given him was retained.

It is unnecessary for me to enumerate more cases, as those I have already stated sufficiently prove the efficacy of the liniment. They were the first cases it had been employed in, and at an early period after the epidemic had made its appearance. I made use of it in all cases I was called to see, and with the same results, and can with truth say that the mode of treatment that I have detailed—*i. e.* the powder of morphia, camphor, and calomel, the enema of laudanum, starch and tannin, and the liniment—was as successful as any that was employed here. Such was also the experience of my friends Drs. Lowe and McLaren.

In diarrhœa and dysentery I have beneficially employed it; also in bilious colic, applied over the region of the liver, stomach, and duodenum. In neuralgic colic it has given great relief; also in flatulent colic of children, and the various derangements of the stomach and bowels incident to them, by rubbing a small quantity over the stomach and abdomen. It is far preferable in cases of this character to opiates, as the same effects are produced, and in a more speedy manner, without the unpleasant results that

often follow their administration. It also has this advantage: that it can be applied when there is an idiosyncrasy that would contra-indicate their exhibition. The following case will prove its efficacy in colic. This is one of the most striking out of a number:—

Case XI.—At about two o'clock in the morning, during the prevalence of the cholera, I was aroused from my slumbers by a friend who was suffering severely from colic. He threw himself upon my bed, and owing to the pain and fright, thinking he was about having an attack of the cholera, he could not make himself intelligible; after performing various gyrations, he made me understand what was the matter with him. I immediately applied the liniment, (which at that time I always had prepared,) and in fifteen minutes after the first application, he was sound asleep. Lest he should have a return, I slept with him, and next morning when I awoke he was gone. He had gone to Fairfield, fifty miles in the interior, to attend to some business, perfectly well. After his return, he told me that he had never had anything to operate on him so beneficially, his pain ceased almost instantaneously, and his sensations were delightful when about falling asleep.

In a case of infantile pneumonia, I employed it with the same success as in Case V, and I do think that it might be beneficial in croup and laryngitis—care, however, being taken, when applied, that the patient do not inhale too much of the chloroform. I have used it in a number of cases of angina with advantage, and I have found it to afford the most decided relief in toothache in many instances. In a case of spinal irritation, and two of dysmenorrhœa, the most beneficial results were derived from its application. In several cases of the most violent earache, the chloroform, dropped into the ear, gave the most decided relief.

Another and a most important and valuable indication that I accidentally discovered in chloroform is that of giving relief to the pain of burns. Having burned myself, and suffered intensely from it, I accidentally saw the liniment, and reasoning *à priori* that it relieved other pain, it might possibly relieve this, the application was made, and my anticipations were realized. The pain for a few moments seemed to be increased; but it soon began to diminish, and entirely ceased. While reflecting upon the result of the last experiment, and the important indications that might follow, it occurred to me that the application of the chloroform alone, and in such a manner as to allow its free evaporation, might be more beneficial. On trial my conjectures were verified; the pain of the burn was relieved, and the cooling sensation produced by the evaporation of the chloroform was truly pleasant to the patient; but it was found necessary to repeat it, and left the burn feeling harsh and disagreeable. To obviate this difficulty, I added olive oil and lime-water to the chloroform, equal parts, and applied it by means of a quill. This I found far more beneficial than the chloroform alone. Applied in this manner, it fulfils several important indications, as its effect is longer continued, and when the chloroform has evaporated, it leaves the oil to protect

the burn from the influence of the atmosphere. I have not had an opportunity to test its merits on an extensive burn, but have every reason to believe that the result would be the same. In large superficial burns in children, where the shock to the system is often so great that they never rally, I think the liniment with ammonia might be beneficially employed.

Being anxious to give it a fair trial, and not having an opportunity, I scalded my left arm; the pure chloroform was applied, so as to allow its free evaporation; it had scarcely touched the arm when there was a change from the burning pain incident to a scald to a sensation of coolness, and almost entire freedom from pain; this, however, lasted only until the chloroform had evaporated, and the part to which it had been applied felt as if an astringent had been applied to it. The pain continuing, the liniment, composed of chloroform, olive oil, and lime-water, was applied, the relief was more permanent, and several applications entirely freed my arm from pain. The next day the skin peeled off. In a number of instances similar favourable results were obtained.

Art. XI.—*Surgical Cases.* By R. McSherry, M. D., U. S. N.

Case I.—*Chronic Inflammation and Abscess of Head of Tibia. Operation with Trephine successful.*—I was invited by my father, Dr. McSherry, of Martinsburgh, Va., to operate on the leg of a coloured patient, John Coleman, a slave, who had been more or less disabled for sixteen years by a blow from the head of an axe while engaged in chopping wood. The immediate pain from the accident was very great, and permanent disease followed; but its progress was slow and by no means uniform. At times he would pass weeks, or perhaps months, engaged in light duties, without material suffering, but at intervals he would have returns of pain sufficient to disable him and to require medical treatment. During some of these attacks, he was treated actively by bleeding, purging, &c., generally, and by blisters, fomentations, poultices, &c., locally. On one occasion, a long incision, down to the bone, was made over the seat of the pain, bringing, however, but a transient mitigation of the sufferings, which, during paroxysms, were almost intolerable. In the course of time, these paroxysms became more severe and longer continued; the patient found himself not only completely disabled, but subject to intense sufferings, which yielded to no treatment. He suffered agonies of pain, without rest or mitigation, day or night; the pains, in fact, were aggravated at night, and laudanum, given in doses of from one to three hundred drops, seemed rather to stimulate his sensibilities than to relieve his sufferings. When I was called upon to operate on him, he had not enjoyed a night's sleep for many weeks; he was anxious to be relieved at any sacrifice, and would have willingly undergone amputation if it had been considered necessary. The tibia by this time had grown somewhat into the shape of a South Sea war-club, so greatly was the head enlarged. After examining it with my father, and my friend, Dr. E. B. Pendleton, I made a crucial incision over the most enlarged portion, dissected

back the flaps, and prepared the way for the trephine by cutting around its circumference with a strong sharp knife into the substance of the bone. Then, with the trephine, I removed a portion of largely-thickened eburnated bone with the attached cancellous structure, which was bathed in pus. There was no flow of purulent fluid, as the quantity was very small. I introduced a tent, applied light dressings, and left the patient much relieved. He enjoyed a good night's rest after the operation, for the first time for a month, and had a rapid recovery. In three months, he was at work in a tannery.

Sir Benjamin Brodie, in his article on "Some other Diseases of the Joints," says: "Occasionally chronic inflammation of an epiphysis terminates in the formation of an abscess in the centre of the bone, but contiguous to the joint. An abscess of this kind is attended with an extraordinary degree of suffering, such as not only justifies amputation, but that induces the patient cheerfully to submit to the operation. Under certain circumstances, however, he may obtain the desired relief without the loss of the limb."

Sir Benjamin then details some cases, similar to the one here reported, in which amputation was performed, and others in which the affected limbs were saved by trephining, an operation he was led to adopt from the light thrown upon the cases by the examination of the diseased structure of the amputated limbs.

I operated on John Coleman in April, 1847. He has since suffered with transient pains in the enlarged bone, but they are comparatively very trifling. On one occasion he had to be relieved by an issue on the cicatrix. He says the leg is rather weak, but he is able to pursue habitually his ordinary occupations.

Case II.—*Removal of Diseased Testis.*—On the 29th of August, 1849, I was requested to operate on Mr. H., a student of medicine, for a chronic disease of the left testis resulting from injury. Before resorting to the *ultima ratio* of the knife, I inquired into the history and treatment of the case, from which I was satisfied not only of the expediency, but of the necessity of the operation. That his life would be saved by it we had reason to hope, while without it, death was apparently inevitable, and that at no very distant period. I learned from his physicians and himself that his disease dated from the month of February, 1848, after having been accidentally struck on the testis by a foil in fencing. Severe suffering followed the blow immediately, violent pains shooting along the nerves to the loins and down the thigh; but as they soon left him he thought no more of the injury, until, in the course of some weeks, pain and swelling in the gland recalled his attention to it. He was subjected to the ordinary course of treatment in such cases, locally and generally, but the disease, so far from abating, grew steadily worse. Mr. H.'s health had been delicate previously; he had been obliged to abandon his collegiate course on account of long-continued functional disorder of the stomach and liver, and, indeed, I believe during his whole life the *vis vitæ* had been below the average standard; yet after leaving college his health improved sufficiently for him to engage in the study of medicine. His professional studies, however, were soon arrested by the progress of his disease; the old train of dyspeptic symptoms reappeared, bringing with them so much suffering, moral as well as physical, that life became a burden to him. In this condition, more than a year after the injury, he consulted an eminent surgeon, and suggested, himself, excision of the testis. By this time the scrotum and other tunics had become so much hardened and increased in bulk that it was difficult, or perhaps impossible, to detect the exact condition of the gland itself. The Doc-

tor, under the impression that the disease was confined to the investments, said there was no necessity for an operation; he put the patient on an alterative course of the iodide of potash, and while under his care laid open a sinus in the scrotum. At the end of five weeks, Mr. H. returned to his home without any amendment; he suffered for some months longer, until, sinking under "hope deferred," he determined that the peccant organ should be removed. He requested that I should perform the operation. Repairing to his house, accordingly, I found him pale, feeble, and emaciated, worn down in mind and body, desponding. He had no hope but in the knife, and his medical advisers agreed with me that the case would end in hectic, unless soon relieved. We therefore prepared him for the operation. The scrotum was greatly enlarged, and covered with fungous granulations; the testis was immovable; we could not define its limits. I suggested to the patient that if, on cutting through the hypertrophied scrotum, the gland should be found safe, we might give it protection from the adjacent skin; but the first incision proved that the connection was too close for separation. Having shaved off the hair, I made two long elliptical incisions from the region over the emergence of the cord at the external abdominal ring down to the inferior extreme of the scrotum. The exposed parts presented but one common mass, so, clearing away the loose tissues about the cord, I divided it, after having thrown around it a double ligature, which caused considerable, but not excessive pain. By a slow dissection the mass was removed. The cord was very much enlarged, almost to the size of a man's thumb, but the ligatures prevented hemorrhage; the enlarged scrotal arteries required ligatures.

We laid open the diseased mass, and found the structures so completely blended that there was no distinction of parts. It appeared to be one hard tumour, marked externally by superficial sinuses and fungous granulations, but internally there was no visible or appreciable distinction between the gland and its tunics, one tissue and another. The whole was of about the size of a large orange.

We applied simple water dressings, and left our patient cheerful and hopeful.

I saw him on the 13th of September, and found him in all respects improved; the end of the cord external to the ligature formed a button-like tumour, which I removed with the knife without pain and with but little hemorrhage. The cord was a white homogeneous structure, in which the arteries alone were to be distinguished. There was no pain along the track of the cord either while at rest or under pressure. The whole wound was healing kindly by granulations.

In December, I heard from Mr. H. He had had swelling of the parotid glands, which he attributed to taking cold; the swelling disappeared, but the remaining testis became enlarged. This had been much wasted during the disease of its fellow, but in time it regained the natural size. A mild course of blue pills and iodide of iron, with a well-regulated diet, corrected a train of dyspeptic symptoms which returned upon him some months after the operation.

At this time, March 1851, he is in good health, with no drawback but from occasional recurrences of dyspepsia. I am disposed to look on the disease of the testis as a case of scrofulous degeneration without essential malignancy.

Baltimore, *March*, 1851.

REVIEWS.

ART. XII.—*Operative Surgery.* By FREDERICK C. SKEY, F. R. S. With numerous wood-cuts. Philadelphia, Blanchard & Lea, 1851: 8vo. pp. 661.

THE title-page of this book very naturally suggests the inquiry, Who is Mr. Skey? Nor is the question one of mere idle curiosity. In the preface, he says, "It may be charged against me that I have expressed freely, and perhaps more authoritatively than I am entitled, my own individual opinions, and have made little reference to those of others. In answer to this charge, I have only to remark, that I do not profess to give the multitudinous opinions of other men, and yet I have not withheld them. I have quoted the opinions entertained by most of the eminent members of the surgical profession, so far as a general intercourse and an extensive acquaintance have enabled me to command it. The character of my mind is not attuned to authority, and it has been my practice, no less than my principle in life, to think for myself. A tolerably extensive intercourse with disease has led me to the opinions which I have embodied in the following work: I profess no more."

But, inasmuch as Mr. Skey appears in the character of a *teacher*, and speaks authoritatively concerning matters of the highest importance, we have a right to ask for some sign by which we may know him to be a true prophet, and not an impostor—one really commissioned to minister at the shrine of Apollo, and to interpret his oracles. Perhaps, modesty may have induced him to withhold his credentials, but for the information of his and our own readers, we must disregard his incognito, and announce him as *one of the assistant surgeons of, and lecturer on Anatomy to, St. Bartholomew's Hospital, London, and member of the Royal College of Surgeons of England.* He has, therefore, a right to our respectful attention.

The occasion and scope of this publication are thus declared by the author in the preface: "The following work was undertaken in compliance with the advice of some professional friends, who equally felt with myself the want of a book on operative surgery, which might become, not simply a guide to the actual operation, and embrace the practical rules required to justify the appeal to the knife, but would embody, at the same time, such principles as should constitute a permanent guide to the practitioner of operative surgery, and without which all claim to its scientific character is lost." In accordance with this manifesto, the author aims, throughout the book, to inculcate correct principles as the basis on which all operations should be predicated.

The volume before us is an American reprint of the London publication.

We do not design to pass in review all of the many subjects which Mr. Skey has embraced in his book—they are too numerous, for his list will be found to include, probably, all of the operations which a surgeon has occasion to perform. We shall, therefore, call the attention of our readers to some of those which seem to us to be most important.

The account of the particular operations practiced is introduced by some general observations on various interesting and important matters connected with operative surgery, as the *preparatory treatment*, and the *after-treatment*, the *etiquette of consultations*, the *individual responsibility of the operator*, &c.

The author's experience of *Chloroform*, also, is given at length, and the propriety and importance of employing it are unequivocally enjoined. His observations on this subject were quoted in full in the last number of this Journal, at page 498, and we need not repeat them now.

Mr. Skey is very earnest in impressing upon his readers the true relation which should exist between operative and medicative surgery; and his remarks are well worth an attentive consideration. The *cacoethes secandi* is not confined to London; there are, unhappily, itching palms everywhere, whose owners cannot, it would seem, overcome the desire to employ them in this heroic manner. The scalpel to them, like the weird dagger to the murder-plotting Macbeth, becomes instinct with a fatal and irresistible eloquence, impelling them to action, and marshalling them the way; it whispers to them the profit and renown which the deed will create for them, and fills their "heat-oppressed brain" with crimson glories; it presents itself to them, its handle towards their hand, inviting their clutch; and, finally, despite their conscience, or their conscience lulled to sleep, they do the deed. To such we commend Mr. Skey's teachings.

In the *second chapter*, the *Implements* of the surgeon are described and commented on, together with the proper modes of employing them.

It is impossible, of course, and unnecessary, to bend to a single uniform rule the multiform tastes and fancies of surgeons with regard to the dimensions and shapes of their knives, and their methods of holding and using them. Each one must be allowed to suit himself in these particulars. Many operators will, we doubt not, approve of the knife which Mr. Skey prefers, and will find, too, that they can employ it most advantageously by wielding it as he advises; while others will choose an instrument differently shaped, and will handle it otherwise.

He recommends very strongly the use of a *silver blade*, whenever, in the progress of an operation, it is of importance to avoid giving rise to the effusion of much blood, and thereby obscuring the part which is being operated upon. "Whether for the exposure of large arteries, or the removal of large tumours, or in hernia, the escape of blood is one of the chief obstacles to the progress of the operation; and when the quantity is large it ceases to be a mere inconvenience, and becomes a serious evil. Much bleeding from small vessels may be avoided by the use of a blunt knife, which lacerates coarsely, instead of minutely. I was indebted to Sir Benjamin Brodie, in the early part of my own career as an operative surgeon, for this useful hint; and I have seen the benefit derived from the employment of a knife with a silver blade, too frequently, to hesitate in recommending it as a valuable appendage to the operating case"—p. 46. Accordingly, in the following pages, the author very frequently directs the use of this instrument. Some other surgeons advise it also. Probably, it will be well for those who are just commencing to operate, to adopt this safe advice; but when self-confidence has been acquired by familiarity with danger, we cannot see the advantage of resorting to an expedient which involves some loss of time and bungling; excepting, perhaps, when operating upon parts in which there is extreme liability of doing serious mischief by the employment of the common scalpel. But, as we said before, let each one, in this matter, judge for himself.

This chapter contains many very sensible and practical remarks concerning the direction and the manner in which *incisions* and *dissections* should be made, the preparation of the divided parts for the subsequent dressings, and the treatment which is most conducive to the healing of wounds thus made. We are particularly pleased that Mr. Skey objects to the fierce and uncompromis-

ing onslaught which the late Mr. Liston made upon *poultices* and *adhesive plaster.* We agree with Mr. Skey in condemning the application of the poultice as an *exclusive* article of dressing when warmth or cold is demanded; in very many cases, perhaps as a general rule, we should prefer the topical employment of water, simple or medicated; but we do most unhesitatingly contend that the latter is much inferior to the former, when it is desirable to *maintain a uniform temperature for a length of time,* as, for example, for the purpose of promoting the maturation of an abscess. And, moreover, in hospital-practice, and among our poorer patients, who cannot command constant and kind attendance, the poultice cannot rationally be dispensed with in favour of the water-dressing, not even during the daytime, and far less at night. We concur with the author, also, in the opinion that Mr. Liston's "isinglass plaster fails in giving the support obtained from the common adhesive plaster spread on linen;" and, as to the greater probability that *erysipelas* will be induced by the latter, rather than by the former, in any situation, we do not believe it; we have used the adhesive plaster in innumerable cases, in hospital-practice and in private, and we cannot recall a single instance in which such a result followed.

Mr. Skey concludes this chapter by devoting a page and a half to the subject of *tetanus,* on which he throws no light whatever, but rather renders our lamentable darkness still more hopeless, by the assurance that "anæsthetic agents, which are invaluable in their power to arrest suffering, possess not the slightest power in contending against the disease itself" (p. 67), as he discovered during the treatment of a recent case of tetanus. He makes no mention, moreover, of the occasional cures which have followed the employment of tobacco, cannabis Indica, the hot-bath, counter-irritation along the spine, &c. We think that it would have been far better for Mr. Skey not to broach the subject of tetanus at all, inasmuch as it forms no necessary part of a treatise on operative surgery, and because his limits are too circumscribed to permit of any waste upon extraneous matters. But, since he has thought it proper to treat of this affection, we regret that he has not, for the benefit of those who may make his volume a reference-book, been more precise in his description of its symptoms, and more communicative concerning its treatment; and as the establishment of correct principles of treatment is a prominent aim of his labours, some remarks concerning the most received *pathology* of this disease would have been very appropriate.

In his Lumleian lectures for 1849 (vid. *London Medical Gazette*), Dr. Todd gives some very instructive views upon the nature and treatment of this terrible malady. He thinks that it is due to an altered state of the blood, induced either by the introduction into it of some poisonous material from without, as in *endemic* tetanus—or by some general vitiation of the nutritive processes, as is illustrated in the *idiopathic* variety—or, finally, by a morbid action occurring in a wound, as in *traumatic* tetanus. The blood, thus changed in its physiological properties, produces a modification of the nutrition of the spinal cord, and thereby occasions an "exalted polarity" of this tract—a state which, in some cases of traumatic tetanus, may be communicated by an inductive process from an irritated nerve in the wound. His opinions derive support from the similarity which exists between this disease and trismus infantum, laryngismus stridulus, and the artificial tetanus produced by strychnia. The symptoms are certainly not *dependent* upon congestion or inflammation of the spinal cord; for, although these states are sometimes found both in idiopathic and in traumatic tetanus, yet cases often occur in which they are entirely wanting; we have met with two instances of this kind, in a very

limited number of cases. Dr. Todd says, "I have examined, with the most scrupulous care, the spinal cords of rabbits which died in strong tetanic convulsions, kept up for some time after large doses of strychnine; but I could not discover, even with the highest powers of the microscope, any indication of deranged structure." And he draws from his investigations of the subject the following inferences: "1. To support the strength of the patient as much as possible, so as to oppose the exhausting effect of the convulsive paroxysms," inasmuch as death takes place, he thinks, not usually from any disorganization of important organs, or from the arrest of functions essential to life, but from gradual exhaustion; "2. To remove all possible sources of irritation or of depravation of the blood, in vitiated secretions, bad diet, impure air; 3. To diminish and reduce the exalted polarity of the nervous centres to their normal condition, and, if possible, to effect this by means which will not reduce the powers of the patient." The third indication has hitherto baffled our efforts, and Dr. Todd thinks that this has been partly owing to the fact that our treatment has been entirely empirical, and that no systematic plan has been persevered in, in a sufficient number of cases, to permit us to arrive at any legitimate conclusion, excepting perhaps in the instance of opium, which has failed signally. He recommends the application of *cold to the spine*, and *the inhalation of Chloroform*. The former he advises from his own experience of its value; it should be employed in the form of *ice contained in ox-gullets placed along the spine;* its effects should be most carefully watched both in order that it shall act sufficiently, and that it shall not produce too sedative an influence upon the heart. He has had no practical acquaintance with the operation of chloroform in tetanus; but from the facts that it has been successfully used in a few instances, and that it has prolonged life and annihilated sensation for a considerable time in many others, he is strongly induced to believe that, when its effects shall have been more carefully studied, and the rules for its administration more accurately established, it will be found to be one of the most reliable remedies which we possess. Its influence upon the action of the heart should be well watched.

In his recent treatise on "General Pathological Anatomy," vol. i. p. 153, M. Cruveilhier throws out a suggestion which may in some cases prove efficacious, as it did in an instance which came under his own observation. He thinks, as is usually taught, but contrary to the opinion of Dr. Todd, that death in tetanus is due to *spasmodic* closure of the glottis producing apnœa. Accordingly, in the case alluded to, he directed the patient to make *permanent efforts at voluntary action* of the respiratory muscles, at regular, natural intervals; the patient, being "full of energy and courage," did so, and recovered. In another case, this plan failed; but the man was not willing, or was unable to follow the advice given him. When his recovery was despaired of, however, "cool baths with cool, and subsequently cold, affusions were employed several times in the day," and he recovered.

The *third chapter* treats of *Dislocations*. Of this class of affections Mr. S.'s *definition* is defective. He says, "By the term dislocation is understood a displacement by violence of any part of the osseous components of a joint from the remainder"—p. 68. But to restrict thus the signification of the term is to exclude from the category of luxations all those cases of displacements which occur "*spontaneously*," i. e. by some change having been produced in the surfaces of the parts composing the joint, either before or after birth.

Cruveilhier's definition of the term luxation is the most comprehensive, and at the same time the most philosophical, which we remember to have

seen: "A luxation exists at a joint, when the articular extremity of one of the bones has become so displaced that the contraction of the muscles cannot restore it to its normal position."—Op. cit. p. 395.

Before treating of individual dislocations, Mr. Skey considers the *principles* which should guide us in their management, and combats "certain opinions and a generally adopted practice which, in his judgment, are erroneous." He wishes to impress upon his readers the idea "that the muscles are the immediate agents of reduction, and not the surgeon, whose entire duty consists in placing the bone in a position to give them the opportunity of displaying this harmony of action, and of exercising a power even beyond that of the mechanical agents of extension." In this he is undoubtedly correct, and we did not suppose that any well-informed surgeon entertained any other opinion, excepting with reference to dislocation of the clavicle, some of the bones of the hand and foot, and others, upon which the muscles exert little or no influence in retaining them in their articular connections. The anatomy of the joints, in fact, will show in what cases this rule is departed from, and will account for such departure. For instance, the construction of the shoulder and hip-joints is such as to admit of very diversified and extensive motions of their respective limbs: the head of the humerus and of the femur are much exposed to dislocation from direct violence applied, and from the action of the powerful muscles which move them; yet the ligaments of these articulations are comparatively feeble, few in number, and so lax as actually to permit the articulating surfaces to separate from each other. But this defect, as it seems, on the part of the ligaments is compensated by the strength of the muscles which immediately envelop the joints, and which, acting upon the bones in all their motions, constantly guard against dislocation. Even in dislocation their conservative aim and tendency are manifest, although now, in consequence of the new position of the head relatively to its socket, the axes of contraction of the muscles with reference to these two points are also changed, so that their effect is reversed, and they tend to perpetuate the displacement, instead of approximating the parts of the joint. So soon, however, as, in the attempt at reduction, their original line of action is restored, by the more favourable position of the head of the bone, they again perform their natural office and draw the latter into its proper receptacle. Therefore, in a case of luxation at one of these joints, the surgeon cannot suppose that by his extension and other manipulations *he* actually restores the dislocated bone, for he must see, at a glance, that if he should continue these efforts after the head had reached a certain point, he would defeat his own aim, and would separate the articulating surfaces farther and farther from each other; accordingly, at this point he wisely ceases his tractions, or the muscles overcome them, and the dislocation is reduced, the bone being drawn in a direction contrary to that in which he has been operating.

But this mechanism of restoration does not apply to dislocations of the clavicle and some other bones, as before mentioned. Here the ligaments are numerous, comparatively, if not absolutely, much stronger than those of the other joints alluded to, and are in fact the real guardians of the articulations; while, on the contrary, the muscles which are inserted into their vicinity tend by their contraction rather to produce displacement, so that the surgeon must not only restore the bone to its proper place, but must also retain it there, by mechanical appliances, until the ligaments shall have regained sufficient strength to enable them to resist effectually the disturbing force of the muscles.

While we admit, then, with the exceptions specified, the correctness of the

principle for which Mr. Skey contends, we cannot agree with him in the inference which he draws from it; viz., that the reduction of a luxation may not be *facilitated* by rotation or other movement impressed upon the head of the bone, in addition to the direct extension which is made upon it. We will cite as a case in point the one which he quotes as having occurred in his own practice, in which the head of the femur was thrown upon the pubis: he says (p. 118), "It was proposed by my colleagues to draw the head of the bone backwards, but chiefly outwards, by a side towel. I expressed my doubt as to the probability of success, and the attempt proved that I was right. The error consisted in the direction in which the extending force was being made; the principle was bad. The case was then given into my charge, and I made extension downwards and a little outwards." In this manner he succeeded in accomplishing the reduction. But if his colleagues and he himself had, *in addition* to the "extension downwards and a little outwards," passed a roller under the upper part of the thigh and elevated the head of the bone a little, *at the same time that extension was being made*, as Sir A. Cooper advises, we think that the restoration would have been effected sooner and with more ease both to the patient and to the surgeon. Such expedients may, we think, be often resorted to as *adjuvants* to direct extension, but not to the exclusion of the latter.

One of the most interesting questions connected with the subject of dislocation regards the reducibility of *old* luxations. Concerning this, Mr. Skey remarks, "It is impossible to lay down any positive rule with regard to the time beyond which an effort at reduction should not be made, unless we carry the question at once into a period of nine months, or a year or more; because, although our success may be improbable, the attempt is worth making, provided it be carried into effect with discretion, and it is very rarely that injury is sustained by the attempt, however painful or long continued; indeed, it is often followed by increased freedom of movement afterwards. Sir A. Cooper objects to efforts being made to reduce dislocations of long standing, and he has endeavoured to define the period at which the attempt may be made. He gives *two months to the humerus, and three months to the femur*. It would appear that the increase of difficulty in the attempt to reduce a bone dislocated three or four months arises rather from the increase of strength and firmness of the fibrous adhesions formed around the end of the dislocated bone, than from the condition of the muscles, which have probably attained their fullest degree of inorganic contractions, and have become partly absorbed at the end of two months"—p. 73. The existence of new growths in the old cavity he considers an obstacle of much less moment.

Now, we think that these observations are very well calculated to mislead those who may refer to this book as a guide in such cases, both as to the facility with which old dislocations may be reduced, and as to the propriety and expediency of making an attempt at their restoration. And the dangerous tendency of these opinions is much increased by the following paragraph: "The immense experience of Sir A. Cooper has failed to furnish a single case of serious injury consequent on the attempt to reduce any form of dislocation. He speaks, indeed, of contusions of the muscles, and lacerations of the skin, and insensibility of the arm; but no instance of serious injury is recorded, to awaken fear or distrust in the mind of the operator, or to create an alarm lest the effort should prove seriously detrimental to his patient"—p. 74. If Mr. Skey had but refreshed his memory and his judgment by the perusal of the opinion which Sir A. Cooper actually did express in the premises, he would have found that that distinguished surgeon did not entertain such views of

the trifling amount of danger connected with the restoration of long-standing dislocations as those which we have just quoted. But he expressly says, "I believe that *much mischief* is produced by attempts to reduce dislocations of long duration in very muscular persons. I have seen great contusion of the integuments, laceration and bruises of muscles, and tension of nerves, inducing an insensibility and *paralysis* of the hand, occasioned by an abortive attempt to reduce a dislocation of the shoulder; so that in such cases, even when the bone has been replaced, it has often proved rather an evil than a benefit from the violence of the extension. I have also heard of cases occurring in the practice of others, in which the *whole side of the trunk became paralyzed* from injury to the cervical vertebræ during a violent extension: and of more than one instance in which the *axillary artery was ruptured;* and some of these cases were fatal. And there are plenty of cases on record *of fatal abscesses*, from violent attempts at the reduction of dislocated hips. *Mr. Skey* has mentioned a *fatal case of phlebitis* following protracted extension of a dislocated hip, during which one hundred and twenty ounces of blood were taken from the patient." (A. Cooper's *Treatise on Disloc. and Fract.* Am. ed., p. 68.) He further says, "I am of opinion that *three months after the accident for the shoulder, and eight weeks for the hip,* may be fixed as the period at which it would be imprudent to make the attempt at reduction, except in persons of extremely relaxed fibre, or of advanced age." (Op. cit. p. 69.) It would be very easy, although unnecessary, to cite other instances in which permanent injury or death has followed such attempts; sufficient evidence has been adduced to show that Mr. Skey has spoken with unwarrantable carelessness concerning this question, and that his own experience is entirely at variance with his assurances as to the absence of danger from the operation.

We agree with the author in the opinion that no definite time can or should be fixed, beyond which an attempt at the reduction of a dislocated bone should not be made. It is not so much a question of time, as of the condition of the new and the original resting-places of the disarticulated end of the bone. But his book affords no information to the inquirer as to how he may learn whether or not certain changes have occurred in the parts concerned, which render an attempt at restoration feasible, or objectionable, or decidedly improper. We apprehend that, as it is impossible to ascertain with certainty the condition of the new and of the old joints, the suggestion of Mr. Bransby Cooper will be found to be the most reliable in practice. This gentleman says, "Should not the principal consideration be, the condition of the new joint, especially as to the degree of motion of which it is capable? for by this a fair judgment may be formed as to what extent nature has altered the surfaces of the bones in contact to fit them for the functions of a joint in their new situation. If any useful motion can be performed, then I believe it may be considered as ill-judged to attempt to restore the dislocated bone to its former articulating cavity, for it seems invariably to happen that, as a new joint becomes fitted for use, so the structures of the old one are rendered incompetent for restoration. Nor do these changes depend so much upon time as upon the attempts which have been made to use the supplementary articulation: for if an unreduced dislocation be maintained in a state of perfect rest, the changes which take place are very slow, and in such cases months may elapse, and yet it may be quite proper to attempt reduction; while, on the other hand, if continued efforts have been made to employ the limb, and a useful motion acquired, more permanent injury is likely to be sustained by restoration of the bone to its original situation than if it be allowed to remain and means are employed to perfect the adaptation of the newly-formed structures." (Ed. Sir A. Cooper,

op. cit. p. 69.) The objection on the score of pain inflicted on the patient is no longer a necessary element in the consideration, but the dangers above enumerated are at least not diminished by the use of anæsthetic agents; they are rather increased, because we are deprived, by the patient's insensibility, of the information which his protective and defensive sensations might otherwise afford us, as to the probable or actual infliction of injury.

The reader will find a very full and satisfactory account of the anatomical conditions of the old and new joints in unreduced dislocations, in the volume of Cruveilhier before cited.

Mr. Skey has omitted all mention of the assistance derivable, in such cases as those we have been considering, from the subcutaneous section of the ligamentous, tendinous, and other recent or original structures by which the restoration of the bone is opposed.

We must pass over the author's observations on individual luxations; they are full, and in the main correct, and may be consulted with advantage.

Nor shall we make any comments on the chapter devoted to the subject of bandaging, but proceed to that on *fractures*. As in the chapter on dislocations, so in this, the remarks on individual fractures are preceded by some general considerations applicable to this class of injuries.

Mr. Skey devotes some space to the question as to the influence of the muscles upon the direction and degree of the displacement of the fragments of the bone. He very properly, as we conceive, contends that the character and direction of the displacement depend first upon the mode of action of the violence which produces the fracture, by which the fibres of the bone are ruptured in a certain direction; and, secondly, upon the sudden contraction of the muscles inserted into the fragments, occurring synchronously with the fracture. We think it highly probable that, in the case of oblique fractures produced by indirect violence, as, for example, of the femur by a fall upon the foot, the particular direction of the obliquity is due to this synchronous spasmodic muscular contraction, one set of muscles, or one muscle, predominating over the others in power, and that the consequent displacement is occasioned, and its direction determined by the same agency, aided, of course, by the continued action of the extraneous force. We cannot, by any other supposition, so satisfactorily account for the fact that in different instances the direction of the fracture will be different, the cause, and, so far as we can ascertain, the mode of its operation, being the same in all. Mr. Skey admits, "the shortening of the limb in fractures is, without doubt, owing to the action of the muscles immediately consequent on the accident; but I contend that this violent action does not continue, as in the case of a dislocation, and I doubt very much whether it is the cause of the prominence of the upper end so frequently found. From the period of the accident, however, if neglected, the muscles of the limb commence a process of slow retraction, which will extend over many days, and even weeks, as occurs in some rare examples of fracture of the neck of the thigh-bone, without early symptoms"—p. 143. Now, as to the *duration* of the muscular contraction, we apprehend that it will continue so long as the muscles concerned are sensible of the existence of a resistance to be overcome, in order that they may assume the greatest degree of shortening of which their fibres will admit, or until their action is opposed by an amount of resistance which they cannot overcome, or until their contractility is exhausted. The obstacles against which they have to contend are the weight of the portion of the limb to be moved, in some instances the impacted state of the fragments, the resistance offered by those fibres of the muscular, ligamentous, and other structures which remain attached to both

fragments of the bone, the opposition of other muscles, &c.; these impediments being so various in degree in different cases, the effect of the antagonistic muscular contraction must be equally uncertain. The reason why the power of the muscles is so much greater in opposing the restoration of a dislocated than of a fractured bone is, we presume, not that there is any difference in their mode of action in the two cases, but that in the latter *some of the muscles* only act upon the lower fragment, while in the former *all the muscles* are called into full contraction, as well those which immediately surround the joint, and which, though short, are exceedingly powerful in the result of their operation, as those which are inserted into the distal extremity of the bone, and even into adjoining bones, and which are remarkable for the extent of their shortening rather than for their contractile power. With regard to the author's doubt, as to the influence of muscular action in producing the projection of the upper fragment of a broken bone, we can see no reason for it; we think that the facts of anatomy, as well as of surgical practice, are against it, and in favour of the positive and decided influence, upon the upper portion of the bone, of the muscles which are inserted into it. He says, "In the case of the thigh, for example, there is no muscle so attached to the bone as to elevate the upper fragment in any other direction than that inwards, for the long muscles of the limb have lost their influence in consequence of the solution of continuity of the bone, on which they have hitherto acted; and of the muscles connected with the upper half, we have none but the triceps, which can only act by distorting the line of the bone in the direction upwards and inwards. It will be recollected that the rectus, in front, passes beyond the fracture, and the cruræus and vasti arise from the upper part of the femur; and cannot, therefore, influence its movements, while the flexors, behind the bone, extend below the fracture to form the hamstrings, and can, of course, only operate on the lower portion. In fracture high up, the psoas and iliacus exercise no influence in elevating the upper end"—p. 142. And at p. 168, "It is an error, not merely common, but almost universal, to attribute the flexion of the thigh on the pelvis to the psoas and iliacus muscles, which have really no influence whatever in raising the leg, as I have proved by experiment to my own satisfaction and to that of others. This action of the limb is effected entirely by the rectus femoris; else, whence the benefit of raising the thigh on the pelvis in fractured patella?" Undoubtedly, the rectus femoris does flex the thigh on the pelvis, but it is not the only muscle which produces this effect; and the situation of the combined psoas and iliacus, their origin and insertion, and the authority of the best observers, as Cruveilhier, Quain and Sharpey, and Theile, for example, induce us to believe that it also flexes the thigh on the pelvis, or the pelvis on the thigh, according as the fixed point is taken on the one or the other. It is fair to infer, therefore, that in the event of a fracture separating the upper part of the thigh-bone, just below the trochanter minor, from the lower, the superior fragment may be tilted upwards by the action of this double muscle; and we have seen this deformity occur, as others have seen it also. Malgaigne states that, in the preparations of the seventeen cases of fracture of the femur at its upper third, which are contained in the Musée Dupuytren, this projection forwards of the lower extremity of the superior fragment is observed in ten. (*Traité des Fractures*, p. 717.) The deviation is not, in general, great, because the muscular action is limited by some or all of the obstacles before mentioned.

But there is another displacement of the upper fragment, which is much more commonly observed than this, as a consequence of fracture at the upper third of the femur; and we are surprised that Mr. Skey has not observed it

repeatedly, and called attention to it in this book. We allude to the projection laterally, or upwards and outwards, of the superior portion of the bone, produced by the combined operation of the psoas and iliacus and the anterior glutei muscles, particularly. The recognition of this deviation, and the counteraction of its effects, by proper position of the limb, is essential to the restoration of the bone to its proper form, length, and strength. A very beautiful illustration of this particular deformity is exhibited in Fig. 2, Pl. XIII. of the atlas which accompanies Malgaigne's *Treatise on Fractures.*

In view of these facts, which establish the influence of the muscles on the direction of the displacement after fracture—and this influence is exerted upon other bones as well as upon the thigh—we must entirely dissent from the opinion of the author that, "when the splints are properly applied, it is of little moment in what position the limb is placed"—p. 147. For example, in a fracture of the femur at its upper third, with the external angular deformity of which we have just spoken, it is by a proper position only that a perfect cure can be gained; pressure by means of compresses laid upon the projection, as is generally recommended, will not answer, but the lower fragment must be so placed that its axis shall correspond with that of the upper.

Mr. Skey's remarks on the mode of reducing fractures, and the apparatus employed to maintain coaptation, and those referring to compound fractures, are very good. We should prefer to have seen more importance attached to *position* in the treatment of this class of injuries, and less to the mere mechanical force exerted by compressing and extending apparatus. He gives a description and an illustration of an extending and counter-extending agent of his own device, which we should be very unwilling to employ (p. 149); for, although it is ingeniously contrived, and perhaps sufficiently powerful to accomplish the purpose for which it was constructed, its practical operation upon the living parts must, we fear, be injurious, from the great and circumscribed pressure which it will necessarily produce upon them.

The author's comments upon particular fractures need not detain us; they are based, of course, upon the general principles which he lays down for the treatment of this class of accidental lesions, and in some respects, therefore, we differ from him. But we can, nevertheless, recommend them to the study of our readers, as containing abundance of valuable suggestions, and as calculated to awaken improving reflections, even where they seem objectionable.

We pass to the *sixth chapter*, "*On operations for Aneurism, and for tying wounded or divided Arteries.*" As in the preceding chapters, we have a preliminary discussion of generalities relating to these subjects, and subsequently the application of these principles to the treatment of particular aneurisms; the whole occupies one hundred pages of the volume, an allotment worthy of the importance and interest of these affections.

As closely appertaining to aneurism and wounds of arteries, the author briefly points out the anatomical and physiological properties of the arteries, the method which nature employs to arrest hemorrhage, the *ligature*, its mode of operation, and the manner of applying it.

It is not to be supposed, of course, that Mr. Skey has intended to give anything like a full and complete account of aneurism; such a dissertation would not be at all necessary to the perfection of his plan, and his limits would not admit of it. We presume that his aim has been to point out so much of the history and pathology of this disease or morbid condition as will enable his readers to treat it intelligently. We think that he has accomplished this object very satisfactorily, and that this preliminary sketch will materially assist the student in his efforts to cure the formidable lesions which it is intended to in-

troduce to his contemplation. There are a few points of pathological interest, however, in which the text is not strictly accurate, and one or two others of more practical moment in which it might with advantage have been more full and explicit.

With regard to the *etiology* of aneurism, it is stated, at page 176, that "the arterial tubes are subject, among other diseases, to a morbid change in the structure of their coats, by which the vessel becomes dilated, and is no longer competent to its functions." This is, so far as we have observed, the only cause assigned. By the expression, "*a morbid change*," the author may mean, it is true, any or all of the alterations or lesions of structure to which the coats of the arteries are liable, whether they originate in abnormal modifications of nutrition, or the result of injury or violence. But we infer from the general tenor of the text that he refers to the common forms of degeneration of the arterial walls, the semi-cartilaginous, atheromatous and calcareous. We object to the author's statement because it is not altogether correct, and because it only reveals a fraction of the truth as to the causation of the aneurismal tumour. From the statistical tables which have been framed by many writers on the diseases of the arteries, it seems that there is a great want of correspondence between the occurrence of the degenerations in question and aneurism, as respects the sex and age of the patients, and the favourite seats of the two affections. Thus, according to Bizot (*Mém. de la Soc. Méd. d' Obs.*, vol. i.), *atheromatous and calcareous degenerations* are found in the different arteries, excluding those of the cavities of the body, in the following order of frequency: the posterior tibial, internal carotid, anterior tibial, perineal, subclavian, coronary, popliteal, crural, common iliac, radial, innominata, brachial, axillary, ulnar, facial, common carotid; while by the table of Mr. Crisp (*Diseases of Blood-vessels*, p. 113), *aneurism* affects the arteries in the following order: the thoracic aorta, popliteal, femoral, abdominal aorta and its branches, carotid, subclavian, innominata, axillary, external iliac, cerebral, pulmonary with the common iliac, gluteal, and posterior tibial, temporal with the ophthalmic, subscapular, and brachial. We find also that the male sex is more frequently afflicted with aneurism than the female, in the proportion of rather more than seven to one (Crisp), while the two sexes are about equally subject to the arterial degeneration. The last-named condition is found very much more commonly than the other to affect the vessels symmetrically. (Bizot.) As old age advances, the fatty and calcareous depositions become more and more constant: "Each morbid phenomenon," says Hasse (p. 82), "progressively increases in frequency and extent, with the age of the subject;" while of the 551 cases of aneurism counted by Mr. Crisp, almost three-fourths occurred before the age of fifty. Admitting, therefore, that the change of structure of the arterial coats is a predisposing cause, other agencies must be operative in the production of aneurism, as violent and laborious exercise, sudden extension of a limb which has been flexed, direct injury inflicted upon the vessel, &c.

In the sentence which we have just quoted, Mr. Skey has manifested a certain carelessness in composition, such as we have remarked in many other pages of his book, which, if the passage were literally interpreted, would convey a very incorrect idea of the causation of an aneurisural tumour. He speaks of "a morbid change in the structure of their coats (of the arteries), by which the vessel becomes dilated," as though the morbid change were the agent in the production of the dilatation. He means to teach, we have no doubt, that the change of structure induces a corresponding modification in the vital properties of the arterial walls, in consequence of which the tube loses the resiliency which enabled it to regain its original calibre after

having been distended by the influx of blood from the heart, and by the constantly recurring action of this disturbing force, gradually attains the increased dimensions which it possesses. Indeed, in another paragraph, he says, "the tendency in an aneurismal tumour to increase in size is due to the actions of the heart, which operates on the diseased coats of the vessels with sufficient force to maintain an uninterrupted enlargement in the volume of the tumour." But the pathological errors contained in the continuation of the same paragraph can scarcely be so easily excused: "Against this mechanical force we have the influence of absorption, the *vis medicatrix*, or what may be termed nature's indisposition to disease. If these two powers are equally balanced, the disease would remain unaltered; but the force of the heart usually predominating, the tumour increases. If that force, however, be reduced in degree, and, without being destroyed, if it be brought within the influence of the *vis medicatrix*, the tumour will be gradually absorbed"—p. 176. It seems to us that Mr. Skey has lost sight of the fact that, in the formation of an aneurismal tumour, a process of *growth*, as well as of dilatation, takes place—of growth of the walls of the artery whereby they are rendered thicker and thus enabled to resist for a longer time than they otherwise could, the *thinning* effect which dilatation of the vessel, uncounteracted by growth, would necessarily produce. And it is in and by this very process of growth that the *vis medicatrix naturæ* manifests its preservative tendency, not by "*absorption*," for by this the walls of the aneurismal sac would be rendered more and more thin and delicate, and the occurrence of rupture and fatal hemorrhage hastened instead of retarded. The walls of the sac continue to grow, keeping pace with the increasing enlargement of its cavity, until their "*reserve power*," as Mr. Paget very happily terms the recuperative and conservative element which nature gives to every structure, and organ, and tissue, has become exhausted; then, as the cavity of the tumour enlarges, the coats of the artery become thinned, and finally give way. But, to guard against this, certain phenomena are, meanwhile, taking place within the sac. Of these Mr. Skey speaks—not very fully, indeed, but sufficiently to show that efforts are made to fill up the sac more or less completely, and thus to cure the disease.

With reference to the *spontaneous cure* of aneurisms, the author says, at page 180, "This end is effected most frequently by the sloughing of the tumour, which process may possibly be the result of increasing pressure on parts not very fully organized. The whole tumour undergoes a change of colour, loses its vitality, and eventually separates, leaving the artery *pervious* to blood"—(he certainly must have omitted, unintentionally and unknowingly, the syllable *im* before the word *pervious*). "Sometimes," he continues, "the sac is attacked by suppurative inflammation, and the entire mass is converted into a large abscess;" (he has again *forgotten*, as we hope, for his own sake, to put a plug of organized fibrin into the artery leading to this "large abscess;") "and thirdly, the contents of the sac, already partly solid, may become entirely consolidated, the entrance of any additional quantity of blood being precluded by the blocking up of the orifice, and the tumour becomes gradually absorbed."

We pass over the author's remarks on the *diagnosis* of aneurism, those concerning the application of the ligature, and the treatment subsequent to the tying of the artery. He has omitted any recommendation of preparatory treatment, a measure, we should suppose, which would materially conduce to the happy issue of the operation upon any of the larger arteries.

Mr. Skey devotes three pages to comments upon, and a description of, the mode of treating aneurism by *pressure*. He has not practiced this plan of

treatment himself, but thinks that, "notwithstanding the occasional objections attendant on the application of pressure, as the agent of cure in the treatment of aneurism, a sufficient amount of success has already attended the experiments that have been tried, to warrant the hope of a useful, if not a brilliant career, for this remedy, when additional experience has divested it of its objections"—p. 192. The objections which he adduces, are the *pain* protracted through the whole period of treatment, and the difficulty, in many cases at least, of avoiding pressure upon the accompanying nerve or vein. But these objections are comparatively trifling, indeed absolutely so, if the pressure be well managed with a proper instrument. And we think that, in estimating the merits of a new plan of treatment, of one too which does away, in a great measure, with a serious operation, the statements made concerning it, and the method and instruments recommended, by those with whom the plan has been most frequently and successfully carried out, should be carefully and implicitly attended to, before any doubt or opposition is pressed. The surgeons of Dublin have the high honor of having been the first, in modern days, to resort to this bloodless procedure. For some reason or other, whether from personal, professional, or civic jealousy, or from other motive, their efforts have been opposed and decried by many other surgeons, particularly by some in Edinburgh, as may be seen in the medical journals of the latter city.

By comparing the statistical table published in the *Dublin Quarterly Journal* for August, 1846, with that given by Dr. Norris in the *Am. Journal* for October, 1849, we have a record of 43 cases of aneurism treated by *compression*. Of these, 34 were of the popliteal, and 9 of the femoral artery; 37 were cured by pressure; in three others, all femoral, the pressure was relinquished, and the cure was completed by ligature. Only one died during the treatment by compression, and that of disease of the heart, the pressure having been maintained twenty days, until all pulsation had ceased in the sac; forty-eight hours after the compressor had been withdrawn, the person died suddenly. In one case, after compression had been continued for some time, in consequence of some pulsation remaining, a galvanic current was passed through the sac; in seven days the patient was attacked with erysipelas, of which he died in six days. In another, the pressure had been instituted a fortnight, when, at the request of the patient, the artery was tied, and the aneurism cured. Descriptions of the instruments most in vogue in Dublin, and which have been found most available, may be found in the medical journals published in that city, particularly in the *Medical Press.*

The duration of the compression varied very much, from ten and a half hours in one, to one hundred and six days in another; the average time of treatment in thirty-four cases, in which the time is specified, having been rather more than thirty days.

In the number of the *American Journal* before alluded to, Dr. Norris presents a table of the statistics of mortality, after *ligature* of the femoral artery for femoral and popliteal aneurisms. "Of the 204 cases contained in the tables, 50 died. Of these, 23 died from mortification of the limb; 8 from hemorrhage; 5 from phlebitis; 3 from tetanus; 2 from hectic and diarrhœa; 1 from thoracic inflammation and abscess in the course of the artery; one from sloughing of the sac; one from the bursting of an aneurism of the aorta within the pericardium, twelve weeks after the operation; 1 from fever; 1 from absorption of pus; and in 4 the cause of death is not noted." And six of the patients who recovered underwent amputation in consequence of gangrene of the limb. Of 123 cases which were cured, and in which the ligature came away from the vessel spontaneously, after a specified time, its average stay was twenty-one days and rather more than two hours.

Here, then, the surgeon has the means of comparing the results of the two modes of treatment, and of deciding between them.

The reader will find Mr. Skey's observations on "operations on wounded arteries" to be very excellent; we would particularly ask their attention to what he says concerning the hæmostatic virtue of *fresh air* in the case of bleeding from small vessels.

We cannot attempt to criticize specially the author's account of the mode of tying particular arteries for the cure of aneurism. We are happy, however, to be able to state our impression that the operations which he advises are, in general, judicious, and that his anatomical teachings are strictly correct. There are but one or two points on which we have a few remarks to make, concerning the text.

At page 204, the author says, "Aneurism of the arteria innominata consists in a simple dilatation of the artery, involving its three coats in a greater or less degree; but it contains no coagulum, for it is a dilatation of the entire vessel;" and further on, "Aneurism of the aorta is not a dilatation of the vessel, nor a true aneurism; but a false aneurism, in which the sac communicates with the vessel by a contracted opening, through which blood enters and coagulates," &c. In these sentences, there are several very inaccurate statements into which Mr. Skey has fallen, simply from a disposition to make certain cases stand as types and standards for a class, and which he would have avoided, had he consulted the opinions and facts adduced by other investigators. Aneurism of the innominata artery, though frequently, is not always a *simple dilatation* of the vessel; it is often a true aneurism, the walls being constituted of all the coats; sometimes a true aneurismal pouch may be engrafted upon a general dilatation of the artery; sometimes the dilatation of the tube is limited to a portion of its walls. Again, it is not a constant truth, that the aneurism in question *contains no coagulum*. We refer, in confirmation of our assertions, to the "Catalogue of the Patholog. Specimens contained in the Museum of the Royal College of Surgeons," recently published, vol. iii. pp. 258–260.

With regard to his opinions concerning aneurism of the aorta, they are equally with the others erroneous. Dr. Hope says, in his admirable treatise on the Diseases of the Heart, &c. (Am. ed. p. 396), after detailing the facts which demonstrate the existence of *true*, in contradistinction to *false*, aneurism of the aorta, "These proofs have of late years been so frequently verified by dissection, that the reality of aneurism by dilatation of all the coats of the artery is no longer problematical. Almost all the aneurisms of the ascending portion and the arch are originally of the true species, but the false is sometimes engrafted upon them;" and he refers to a case corroborative of these statements. In the catalogue just quoted, descriptions of aneurismal dilatations and of true aneurisms of all portions of the aorta, from its origin within the pericardium to the end of its arch, may be found (pp. 241–256).

The author explains the diagnosis, the history of the operation for tying the innominata, and the mode of performing the operation, with sufficient clearness. In every one of the four or five cases in which this operation has been done, death has followed on from the 26th to the 67th day. The procedure devised and first practiced by Mr. Wardrop has, on the contrary, been more successful in its results. It is a modification of Brasdor's operation, and consists in applying the ligature around one of the branches of the innominata, either the subclavian or the carotid, as may seem most expedient. Mr. Wardrop says (*Cyclop. Pract. Surgery*, vol. i. p. 237), "It is a fact demonstrated by dissection, and worthy of remark in contemplating this mode of

operating, that when a spontaneous cure of aneurism of the aorta has been going on, Nature has usually plugged up the carotid, so that in performing an operation for the cure of such an aneurism it would be advisable to imitate her in this respect, and to place the ligature on the carotid instead of the subclavian;" but if either of the two vessels were entirely or partially obstructed, the ligature should be applied around the other. Mr. Hancock, writing in 1839 in the *Cyclop. Anatomy and Physiology* (art. "Innominata"), concerning this operation, uses the following language: "Out of the seven cases in which it has hitherto been employed, and which I have here cited, three were successful, and of the other four one lived for a period of twenty months, and another for about two years after the operation." And yet, in the face of these *facts*, we find Mr. Miller, in his *Principles of Surgery*, p. 578, saying of it, "In my humble apprehension, under all circumstances inexpedient; because containing within itself the elements of *certain failure.*" We are sorry to observe that the only mention which Mr. Skey makes of this method is, "in aneurism of the innominata, the operation of Brasdor has been successfully revived by Mr. Wardrop"—p. 210. We may mention, as supporting the propriety of this operation, and in confirmation of the statement of Mr. Wardrop, that in the "Catalogue of the Royal College of Surgeons," to which we have already referred (pp. 258–260), there are descriptions of five preparations of aneurism of the innominata; in two of these the right subclavian and carotid arteries are healthy; in one they are a little dilated; in a fourth, "between the first rib and the clavicle, *the subclavian artery is obliterated*, probably by the pressure of the aneurism;" and in the fifth "*the right carotid artery* adheres to the front of the sac, and is *flattened* by it; *the right subclavian* adheres to its lower part, and is *obliterated* by its pressure."

We had intended to quote in full the author's description of the operation for securing the *subclavian artery*, inasmuch as it differs in its line of incision from those usually practiced, and as the history of the case in which it was performed has never before been published. But we must content ourselves with simply referring to it, pp. 211–218. We pass over, also, what remains of this chapter, and several of those which succeed it, in which he treats of venesection, arteriotomy, and varicose veins, to that in which the subject of *amputation* is discussed.

To this class of operations Mr. Skey devotes seventy pages, considering first the circumstances which justify or require such a serious operation, the different modes of performing it, with their respective merits, and some other points pertaining to it; and, secondly, special amputations.

Like the other chapters, this one contains a great deal of very valuable advice. Mr. Skey is averse to amputating, whenever it can be avoided, and very properly contrasts the present improved state of surgery, as respects this operation, with its condition some years ago, limbs being preserved for years of usefulness now, which then were sacrificed as a matter of course. He truly says, "that the aim of surgery is to preserve, and not to destroy; and that more real superiority is exhibited in the successful application of skill that retains a limb, than in the dexterity, however great, with which it is severed from the rest of the body." And, in accordance with this principle, he endeavours honestly to lay down the proper grounds upon which alone an amputation may be done, and the best method of doing it. The chapter possesses numerous and decided merits, and the few faults which a critical eye may detect in it are generally rather of omission than of commission, resulting sometimes from haste or carelessness in composition. As an example of this, we may refer to his description of the mode of performing the circular

operation, p. 303, which is not clearly expressed. Mr. Skey enumerates as among the circumstances which justify or may require amputation, "extreme cases of irreducible dislocation;" but before this step is resorted to, he says that all other means must be tried for the purpose of relieving the difficulty, such as dividing the obstructing tendons, ligaments, &c. "If this principle be fully carried out, if the surgeon resolve to sacrifice the joint, or rather to *risk* the destruction of the joint as a movable articulation, amputation will be rarely resorted to in cases of irreducible dislocation"—p. 302. And on the same page he says, "With regard to operations for distortion, &c., or operations of expediency, as they are somewhat inappropriately called, I have only to remind the reader that they are so often followed by serious and even dangerous results, as are, indeed, all large operations performed during a condition of the nervous system unprepared for the shock, that they should rarely, if ever, be recommended, and not always resorted to on importunity." Here, it seems to us, Mr. Skey stoops too much from the firm and dignified stand which he before assumed with respect to operations not demanded by necessity. We do not think that a surgeon has any right, nay, we think that he would do wrong, to perform so serious an operation as this from any amount of *importunity* on the part of the patient, unless he were firmly convinced in his own honest heart of its propriety. We can scarcely conceive that any case of simple unreduced dislocation will justify an amputation; neither are we disposed to admit the propriety of this operation in the case of distortion or deformity, unless a state of actual disease shall have resulted from them. And always before removing a limb or a portion of a limb, the surgeon should satisfy himself that the dangers to life and health, with and from amputation, would be less than they would be without it. The patient cannot appreciate or estimate the dangers attending amputation, even of a small member, so well as the surgeon, and, therefore, the full responsibility of the performance of an operation cannot be transferred from the latter to the former; neither can the surgeon be forced to perform an operation of which he disapproves.

Mr. Skey has contrived a tourniquet which, we should think, will be found a very useful one in amputations, and whenever else it is necessary to arrest the circulation through the main artery of a limb without producing constriction around its entire circumference. The description and representation of this instrument will be found in another department of this Journal.

Chapter tenth is taken up with the operations of *excision* and *resection*, concerning which, the author's remarks are very judicious. Next follow in order chapters devoted to operations practiced on *tumours;* on *bursæ* and *ganglions;* those performed on the *head*, *face*, and *neck*, including the process of elevating depressed cranial bone, the rhinoplastic operations, those for polypus of the nose, hare-lip, ranula, enlarged tonsils, staphyloraphy, bronchocele, tracheotomy, and laryngotomy. These are well described and judiciously chosen.

The operations *on the chest and abdomen* constitute the next portions of the volume. Among these we find *paracentesis* and those for the different varieties of *hernia.*

The author's remarks concerning the last-named affection are thus commenced: "The operating theatre of a hospital is the only school for the acquisition of a complete and practical knowledge of hernia. Indispensable as may be the cultivation of anatomy to entitle a surgeon to rank in the operative department of our art; we find, perhaps, no branch of the subject in which the acquirement of the dissecting-room leaves the real necessities of the practical surgeon so unsatisfied as that of hernia, or in which the recollections

or associations of that theatre of study can so little be brought to bear upon the almost infinite varieties of form and structure that present themselves to the operator throughout a long career of hospital practice." Every one will admit the truth of these observations. But Mr. Skey has no intention, as he proceeds to say, to undervalue the importance to the operator of a dissecting-room education.

The subject of this chapter is very well handled; the author's views of the pathology and of the practice being very judicious. In treating of hernia, he examines its nature and the causes which produce it; the anatomical relations of the protrusion, the obstacles to its restoration, and the mode of overcoming these. He very properly asserts that "a hernia is always the cause of its own strangulation, unless the aperture through which it escapes from the abdomen consists of muscular fibres so arranged as to be able to contract around it." And this fact has an important bearing upon the treatment of strangulated hernia, and shows the folly of long postponing the resort to the knife, in favour of the continued employment of the hot-bath, tobacco cataplasms and enemata, bleeding, and the like remedies, as though the constriction at the neck of the sac depended upon muscular spasm.

In detailing the symptoms of strangulated hernia, the author points out some of the sources of doubt and error in forming a correct diagnosis. In all such cases, he recommends the operation, if other means fail, provided that, with the other symptoms of this affection, there be positive swelling, however small and difficult of detection it may be. "It would be better to cut down unnecessarily on ten tumours bearing the evidence of hernia, than to omit to bring one true hernial tumour to the test of the knife. For, it must be recollected, the operation suggested is not the operation for strangulated hernia, but merely an exploration preparatory, if necessary, to the operation itself. Such a case occurred to me, during the course of last summer, in St. Bartholomew's Hospital. A man was brought in, having symptoms of strangulation, with a tumour in the groin. My colleagues and myself were unanimous in our opinion of the existence of hernia. In the absence of Mr. Lawrence, who had, however, seen the case, and recommended the operation, the duty devolved on me. I exposed the tumour, which proved to be an absorbed (absorbent?) gland. This man had local pain, sickness, and constipation."

With reference to the delaying of the operation, he says: "I believe it may be asserted, without fear of contradiction, that the danger attendant on the operation for strangulated hernia is nearly in proportion to the period of the strangulation. Within the last quarter of a century, the treatment of that disease has undergone a considerable improvement, founded on an advanced pathology. Within my own recollection, many hours, even a day or more, were allowed to elapse, for the purpose of bringing into action many worthless remedies that were inoperative to any purpose but that of reducing the small chance of the patient's recovery, by wasting the precious hours during which the operation might have been undertaken with a prospect of success. The profession had a routine of remedies which were resorted to in a given order of succession; and, until they were exhausted, it was not deemed right to have recourse to the only remedy that could be available to a successful result. The taxis, warm-bath, taxis repeated, cold effusion, the local application of ice, taxis repeated, the tobacco enema, and, finally, more taxis, and then the operation." This is all very true; and we have no doubt that many lives have been let slip by the too prolonged and repeated application of manual efforts by the surgeon and his friends in consultation. We commend, therefore, this determination of Mr. Skey: "I have myself adopted a rule for many years,

not to attempt reduction by any persistent effort, after having ascertained that a previous attempt has been judiciously made by a *competent* man." The author ranks the application of *cold* to the tumour as next in efficacy to the taxis.

We need not comment upon his description of the performance of the operation in general. We think, however, that he makes an unnecessarily liberal allowance in stating that the division of about *a quarter of an inch* will generally suffice for the return of the protrusion; we are inclined to think that a much more restricted incision will *generally* relieve the stricture.

The quotations which we have made will, we hope, favourably impress our readers, as we have been impressed, with Mr. Skey's book, so far as it refers to hernia. In his observations on special herniæ, the general principles on which we have thus far remarked are carried out.

We have next presented to our notice certain operations practiced on the external organs of generation in the male, on the male perineum, and about the anus. Of these we shall only notice those of *lithotomy* and *lithotrity*, with which the 18*th Chapter* is taken up.

Mr. Skey's remarks concerning these procedures for relieving the bladder of the stone are conceived in a spirit of great candour and good judgment. Of the two, he prefers the crushing operation whenever it can be resorted to, considering this the rule, the other the exception; and his object is to lay down certain conditions which are favourable to, or demand, the one rather than the other. He says, "If we were to select a case for the exhibition of the operation of lithotrity—and I take lithotrity as the rule, and the cutting operation as the exception, considering the simpler and safer course that demanding the first consideration, and before the tribunal of which the case is to be first brought to trial—if we had the power of selecting a case especially suitable in all its bearings, we should require the following conditions: First, well-developed manhood; second, a healthy and readily dilatable urethra; third, a bladder free from irritation, and capable of retaining at least six ounces of urine, a condition which infers the absence of prostatic disease; fourth, a tonic condition of the nervous system; and, fifth, the presence of a stone of such dimensions as to be readily embraced by the screw of the lithotrite." These conditions become the subjects of further discussion and modifications, and directions are given for the preparation of the patient for the operation, which is all important, for upon judicious preparatory treatment we believe the success of the operation very much depends.

Mr. Skey is by no means singular in interdicting lithotrity *in children;* but we think there is no real ground for the objection. His reasons are, the small size of the urethra and bladder in the child, and the danger that an instrument small enough to enter the bladder would not possess sufficient strength to permit of the crushing of the stone, but would rather break itself; he has no doubt, however, "but that the operation of lithotrity may be rendered available to boys as early as thirteen years of age, by a reduction in the size of the adult lithotrite, and by careful dilatation of the urethra." But it must be remembered that the urethra of children is very dilatable, and that the calculi which are formed in the bladder at this age are generally smaller, and not more hard, than those which occur in the adult. And what theory will justify in this case, practice confirms, for the operation has been done often enough in children, even of very tender years, to establish its propriety. We have met with the following cases, after but a very brief search in a few of the journals: M. Segalas operated upon a child only thirty-three months old, and in six sittings, in as many weeks, crushed an oxalate of lime

calculus eleven lines in diameter; the child, during this time, was permitted to sport as usual, and his recovery was complete. (*Am. Journ.*, vol. xx. p. 234, and *Brit. and For. Med. Rev.*, vol. v. p. 250.) M. Guersent, Jr., cured five cases of eight in children, only one of the deaths being due to the operation; he cut thirty-seven children for stone, of whom seven died, four of them, however, not from the operation, but from intercurrent diseases. (*London Lancet*, vol. i. 1848, p. 184.) A reviewer in the *Brit. and For. Med.-Chir. Rev.* (vol. i. p. 120) says that he has "operated successfully upon two boys between two and three years of age; one between three and four; one but little more than four; one about seven, and a girl nine years old. In one of the two youngest the calculus was mulberry, and about the size of a bean; it was crushed in one sitting, and not a bad symptom followed. In the other, the calculus was phosphatic upon a base of lithic acid; it was about the size of an almond (with the shell), and ten sittings were required, but the cure was complete on the 30th day. In the case of the boy in his fourth year, the calculus was mulberry and scarcely so large as the last; three sittings were required on alternate days, and after the third, the cure was complete. In the next in point of age, the calculus was also mulberry, and about the same size; four sittings at different periods within twenty days completed the cure. In the boy aged nine, a calculus of lithate of ammonia, larger than a bean, was crushed in two sittings on alternate days. In the girl, a lithic acid and lithate of ammonia calculus, of the size of a large walnut, was complicated by a deranged state of the general health, hectic, and catarrh of the bladder, the symptoms of stone having been observed upwards of four years; yet in twenty-four days, after six sittings, the bladder was completely liberated; the only accident was the detention of two large fragments at the meatus, after the first sitting, and the child has since continued in good health." Dr. Nathan R. Smith, of Baltimore, "has performed lithotripsy, with Jacobson's and Heurteloup's instruments, on infants two years of age, in no less than four instances, and on several other very young subjects. In one respect he has found the operation more certain than on adults; the bladder expels the fragments more promptly." (*Trans. of the Am. Med. Assoc.*, vol. ii. p. 227.) Thus, it would seem that Mr. Skey is not at all borne out by facts in his condemnation of this operation on children. The real objection stated by those who have performed it on such patients is that the neck of the bladder dilating quite freely, and the stream of urine flowing through it strongly, fragments may enter and remain in the urethra, requiring, perhaps, another operation for their removal from this new situation; but in only one of the cases which we have quoted was this difficulty met with. Mr. Skey makes no allusion to the applicability of lithotrity to *females*, and perhaps from the emphasis which he lays on "*well-developed manhood*," as one of the pre-requisite conditions for its performance, he may intend to confine it to the male sex. But the tables of M. Civiale rather go to show that its results in the female are even more favourable than in the male, in consequence of the anatomical and physiological peculiarities of the urethra in the former. And it is certain, that if any operation other than that of simple dilatation of the urethra and neck of the bladder be requisite to relieve the bladder of a woman of stone, lithotrity possesses a great advantage in being free from the liability of leaving behind it such an annoying and mortifying infirmity as a *vesico-vaginal fistula*, which, we believe, is rather apt to remain after lithotomy in the female. Mr. Skey does not inform us whether he is an advocate for the use of chloroform in these operations, or not. This is a question of some importance, now that the administration of this "sweet oblivious antidote" has become so general.

We see no reason why it should not be given in *lithotomy* as freely as in any other operation; but we think there is a decided impropriety in employing it in *lithotrity*. There is no operation which demands gentleness and delicacy of manipulation more than this. The only evidence which the operator can have, that he is doing injury to his patient, is the exhibition of suffering on the part of the latter; but this warning signal is rendered inoperative by the anæsthesia of the patient. In order to secure, so far as can be done, successful result after this operation, the physical and mental condition of the individual should be as healthy as possible, and the instincts which apprise him and the operator of the infliction of injury should not be silenced or unheeded.

For the cutting operation, Mr. Skey advises the use of a staff having a curve longer and more considerable than that which is in common use, and of a *scalpel* instead of the gorget. He differs from other surgeons of high and deserved repute, whose advice should not be hastily departed from, in inculcating that there is no danger in cutting through the bulb of the corpus spongiosum. The lateral operation is the only one which he describes.

Several lengthy chapters are taken up with the consideration of *lateral curvature; club-foot, and other deformities; puncture of the intestines in constipation, and for imperforate anus in infants; removal of cicatrices, and autoplastic operations; extraction of foreign bodies from the tissues; acupuncture*. And the author also devotes considerable space to the discussion of the *Cæsarean operation*, and *ovariotomy*, procedures which are now exciting much interest at home and abroad. The question of the greatest importance at present, concerning the latter, refers to the *diagnosis* of the morbid condition, and on this Mr. Skey sheds no light. He advocates the operation strongly—more strongly, it seems to us, than is advisable, considering the errors in diagnosis which are constantly being made, from the impossibility of being surely right, and in view also of the tendency, which he acknowledges to exist, to the performance of bold operations which are often not justifiable. If all who have practiced this procedure would publish fully the results of unsuccessful as well as of fortunate cases, and would make known their errors of diagnosis and the sources of them, as we believe has been done by the most distinguished of its performers in this city, the profession would soon be in a position to judge more fairly of its propriety and its merits. Until then it need not surprise us that the vast majority of judicious men look upon it with doubt and distrust.

The remaining sixty pages of the volume are devoted to operations on the eye. With these Mr. Skey acknowledges in the preface that he is less personally familiar than with the foregoing; and he has therefore "not hesitated to make an extended reference to the works and opinions of others" concerning them. Among other distinguished ophthalmologists whom he quotes, we see the names of Scarpa, Mackenzie, Lawrence, Dalrymple, Weller, Jörg, &c.

In conclusion, Mr. Skey has appended an "index to instruments and apparatus required for special operations," which, we have no doubt, will be of assistance to young operators.

The wood-cuts illustrating the text of this volume are very numerous and descriptive. The style in which the author clothes his thoughts is deficient in elegance, often it is even very faulty, and sometimes exceedingly obscure; like the utterings of Delphos or Dodona, it is frequently susceptible of more than one interpretation.

No one, at the present day, when so many zealous labourers are in the field, if he rely solely or chiefly upon his own abilities and acquirements, however

great these may be, can make a book on any subject connected with medicine, which shall be as complete as it might have been had its author sought for and availed himself of the harvest of his fellow-reapers. And, therefore, this volume of Mr. Skey's cannot be considered so much an exposition of the present state and requirements of operative surgery, as of the opinions and practice of a surgeon who thinks for himself, and who has had abundant opportunity of gaining practical skill and knowledge. Amongst other merits this must be looked upon as an important one—that its advice is decided upon everything, and its recommendations are explicit; its reader is not left in doubt as to what the author would counsel him to do. F. W. S.

ART. XIII.—*Le Climat de l'Italie, sous le rapport Hygiènique et Médicale.* Par le Docteur ED. CARRIERE. Paris, 1849 : pp. 582.

The Climate of Italy in its Hygienic and Medical Relations. By Dr. ED. CARRIERE.

IMPRESSED with the favourable position Italy occupies on the globe—its geographical situation, its mild and soft climate, and the vast extent of its accessible coast—Vitruvius, centuries ago, remarked that this favoured land had been so placed, in order that it might conquer southerners through the effect of physical force, and subject northern nations through the influence of the intellect. In an historical point of view, as our author observes, the remark is correct, for it expresses the double influence which the Roman world exercised on contemporaneous nations. But it does more, extended as it may be to mean, that the race by which that country was peopled was, like its climate, of a mixed character, and that, while the ancient masters of Italy were endowed with the power which conquers, and the thought which civilizes, the climate and the soil of their country combined the tonic effects of the north with the enervating influences of the south. The opinion of Vitruvius was that of all antiquity.

"The happy soil of Italy, which had to fear neither the extreme cold of Germany, nor the scorching rays of the Egyptian sun, was, of all others, the soil of predilection. None other, either on the Grecian coast or in western regions, was preferable. Such advantages, which, doubtless, were exaggerated at the time that Rome was at the pinnacle of splendour, attracted the barbarians to the soil of the peninsula. All the luxuries—all the monuments—all the power of the metropolis and of Italy disappeared before them; but the climate remained. It has become in our days a subject of investigation, and medicine has been enabled to class it among the active means employed to combat disease."

The science of climatology is far from being one of recent creation. It ascends to a remote period in the history of medicine, and, like most other branches of professional inquiry, originated in Greece. But, though at that early period some of the many effects of climate had been noted, the therapeutic and hygienic deductions to which they led were overlooked. Nor does it appear that by the Romans much progress was made in the science; for, though Ideler* has, with true Germanic industry, pointed in ancient records to indications, more or less satisfactory, of investigations relative to the

* Meteorologia Veterum Græcorum atque Romanorum, 1832.

therapeutic properties of climates, the results obtained are scarcely of sufficient value to deserve the attention of medical inquirers. It is true that the Romans did not fail to note the peculiarities of the Italian climate. So far from it, physicians, poets, historians, in works we still read with pleasure and advantage—Pliny, Cato, Varro, Cicero, Palladius, and Columella—have, while treating of the cultivation and natural history of the soil, entered into useful details relative to the general conditions of the atmosphere, and the varied characters of the seasons. But beyond these meteorological questions they did not proceed, unless, indeed, to sing the praises of their country; and the medical inquirer finds in their writings nothing which can be applied to useful professional purposes.

It does not appear, indeed, that anything of interest or value was effected on the subject prior to the return of the crusaders from the Holy Land, when the professional services of the pupils of the schools of Monte Casino, but especially of Salernum, were extended to the wounded and sick, who, many of them individuals of rank and note, remained a greater or less time in the country, or even took up their abode permanently there; and, appreciating the advantages and delights of the climate, probably led the way to the correct investigation of its hygienic and therapeutical influences. This at least we may infer from the fact that the only work which the Italian school of that period produced, or rather which has come down to us, the poetic treatise on Hygiene of Salernum, Regimen Medicinæ Salernitanæ—in which the action on the human body of external agencies is clearly pointed out—we find nothing relative to the therapeutical influences of the climate of that place, or of the peninsula generally. The revolutions, civil wars, and foreign invasions, of which Italy was long the victim, greatly retarded the progress of professional investigations on this and other subjects. But at the period of the revival of sciences, the study of epidemics, which had, long before, exercised the minds of Grecian physicians, elicited the attention of the Italians. Our author remarks, indeed, that the subject could scarcely fail to attract particular attention in Italy, inasmuch as the peninsula had been, even during the time of the Romans, a prey to those terrible scourges which extend their ravages over entire populations; and as, since it had become covered over with ruins, those disasters had returned at short intervals, and appeared to derive an increased energy from the insalubrious conditions of some portions of the soil. Physicians applied themselves in consequence to the analysis of the effects, as well as to the study of the causes, of those diseases; and their investigations, which were the results of necessity, led to more precise notions than were before possessed relative to the condition of the soil, the quality of the air, the influence of the winds, and the relation existing between these agencies, and the physiological and pathological effects they produce on the human body. Many of the works written or published on this useful and interesting topic have, doubtless, been lost; for we possess none anterior to the two memoirs of Lancisi on the Roman climate, and which appeared, or were written, about the close of the seventeenth, or beginning of the eighteenth century. Those that have followed usually refer to particular towns or circumscribed territories, and even of such, very few deserve serious attention, being, for the most part, written with a view to extol, in the most eulogistic style, the beauties, excellencies, and curative effects of particular places, and to prove their superiority over every other spot in creation. Dr. C. properly excludes from this censure a few works of decided merit, which have appeared in our own days, and are written with what he denominates scientific sincerity. Among these may be mentioned the works of De Renzi and Roubaudi; to

the former of whom we are indebted for an excellent monograph on the medical topography and statistics of Naples, and to the latter for a very good essay on Nice and its environs. Of the productions of those who treat of the climate of the whole peninsula, Dr. C. does not speak favourably. Dr. Clark (Sir James), he says, has contented himself with combining figures, more or less accurate, with monographs, which are almost invariably unsatisfactory. Dr. Barzelotti, of Pisa, has, at least, produced something original, by drawing up a chart divided into categories of climate, in which each of them is represented by a particular colour. But the work is merely ingenious. As to the text, the poetic element figures in it conspicuously, and besides, it consists of little more than a kind of guide book, useful to every one but invalids. To those who are acquainted with these two works, we scarcely need remark that, though defective in some respects, they, especially the first, are entitled to greater regard than our author seems willing to accord to them. But, while entertaining this opinion, we are free to admit that he has not been too severe on the work of his countryman Thouvenelle, which appeared at the close of the last century. It is now before us, and, after examining its contents attentively, with the view to the preparation of this article, and in order to compare the results of the observations therein embodied with those to which Dr. C. has arrived, we have, like the latter, found it to contain nothing we searched for—the author entering into no useful details, and offering few practical applications. He places the scene of his investigations far above the surface of the earth, and in the regions of the clouds, where every agency devolves on the gaseous fluids, and on the electricity floating in the atmosphere.

Dr. C. first treats of the climate of the Italian peninsula generally, and in a separate division of his work passes in review the climate of separate places. For the latter purpose he divides the whole country into three regions—the southern, the middle, and the northern. The first of these regions comprehends the country south of a line drawn from the eastern shore of the Gulf of Gaëta, on the Mediterranean, to the Adriatic Sea, by the valley and mouth of the river Pescara. It includes all the Neapolitan provinces, (Salernum, Capri, Massa, Torrente, Castellamare, Torre del Greco, Resina, Portici, Naples, Puozzoli, Baia, Ischia, Gaëta,) with the exception of the ulterior Abbruzzi. The middle region is comprised between the ulterior Abbruzzi and the Bolognese territory on the Adriatic, and between the Gulf of Gaëta and the territory of Lucca on the Tyrrhenean Sea. It is composed of the Roman States and Etruria, Rome, Sienna, Florence, Pisa, and the Roman and Tuscan Maremme. The northern region is that which forms part of the continent, and from which the Peninsula starts. It comprises, among other places of interest, Venice, Milan and its lakes, Genoa, Menton, Villefranche, Nice, and Hyeres.

In investigating the climate of the country in its *ensemble*, as well as the climate of separate localities and cities, our author has adopted the division proposed by Hippocrates; convinced as he is, and as every writer has been, who since the days of the Coan sage has turned his attention to the subject, that, whatever may have been the progress of the science during that long period, the investigator finds it necessary to resort to that inevitable trilogia, air, waters, and situations. But, while we admit this necessity, we cannot shut our eyes to the fact that it has lost a portion of its original simplicity. Each of its elements forms, at present, a fasciculus or combination of numerous facts or circumstances, which require a degree of development proportionate to their relative importance. Thus *situations* comprehend the

form of the territory, its exposition, its geological composition, the chemical transformations it may present, the general characters of the vegetation—those indices of the quality of the soil, and of the influence of the sky. The waters, which must be studied not only in reference to their nature, but also to their distribution around continents, and on the surface of the soil itself, must be examined, likewise, under that meteoric form which condenses, after having reduced them to the state of vapour, and plays so active a part in the conditions of the climate, and the diurnal changes it undergoes. The air comprehends the entire history of the movements of the atmosphere and of the reactions which it undergoes through the instrumentality of electricity, caloric, gaseous substances, and of those undetected agencies which float in the midst of this luminous ocean. By adding to these several orders of causes, man, or the race they modify, or that exhibits more or less deep imprints of their power, but at the same time modifies them to a greater or less extent, the principal conditions of the problem will be grouped in the mutuality and combination of their relations.

Italy has been compared, so far as regards the configuration of its territory, to a boot, the toe of which pushes Sicily out at sea. The comparison is not inappropriate; but Dr. C. very justly prefers the one suggested by Pliny, who remarked that that country resembles a long and narrow oak leaf, the indented edges of which give a good idea of the long series of bays, gulfs, and promontories by which the coast throughout its whole extent is studded; while the rib which divides the leaf longitudinally represents the important Apennine chain which divides, in a corresponding direction, the maritime region of the country. The Apennine in this way separates the peninsula into two opposite zones; the one facing the Adriatic, the other the Mediterranean. In its course it sometimes approaches to, at other times it recedes from the coast, and sends off several lateral prolongations, as the Campanian chain, or the mountains of Gaeta; and on reaching the southern extremity of the kingdom of Naples, bifurcates and proceeds east and west. But in a northern direction the Apennine does not ascend as far as the farthest limits of Italy—belonging only to the maritime or peninsular portion of the country; whilst the Alps constitute, in some measure, the basis of the continental portion. These important mountains constitute the northern barrier of the Milanese, and between them and the Apennine chain (which proceeds from the margin of the Gulf of Genoa to the centre of Italy, whence it takes a southern direction), are situated, not only the latter territory, but a large portion of the Papal domains. This well-watered, populous, and fertile region is enclosed on all sides, except the eastern, or that facing the Adriatic. The northern portion of Tuscany constitutes the limits of continental and the commencement of maritime Italy.

The western and eastern zones or regions, formed in the way mentioned by the Apennine chain, and extending on both sides from the mountain to the sea, differ from each other in a very important point—namely, as regards their level. The first or western zone consists, in many places, of a low plain on which the water flows with difficulty, and which favours the overflow of the sea or of the nowing streams. The eastern region, on the contrary, assumes the characteven o amphitheatre, and the coast, instead of being flat and level, is high abd, writt surface of the sea. It is scarcely necessary to remark that this differencelle the topography of the country is one of great importance in a hygienic point of view, occasioning, as it must naturally do, a very great contrast in the salubrity of the several localities. Marshy overflows are formed on the low flat and level portions of the soil; and from these, under the influence of high atmospheric heat and other agencies, arise those miasmatic

exhalations which produce remittent and intermittent fevers. The western region of maritime Italy presents many such marshy districts; while the eastern, as also the coast of the Ionian Sea, though not free from them, is much less characterized by them than the former.

Dr. C. very justly remarks that, if the depressions of the Italian coast occasion inconveniences, its multiplied irregularities and deep indentations give rise to important advantages. Maritime climates enjoy more agreeable influences than those of continental regions. These agreeable influences, which are connected with the hygrometrical condition of the atmosphere and the uniform temperature of the sea, are in ratio to the sinuosities of the coast, or in other words to their absolute development. In proportion as the coast exhibits that character, do the extremes of temperature approximate to each other—the less cold there is in winter, the less heat there is in summer.

"Europe," he says, "is, of all countries in the world, the most favoured in this respect; and in Europe there are two regions, which on that point may be placed above all others. The one, England, with its depending islands; the other Italy, from Tuscany to Calabria. The former is indebted to those conditions for an hibernal mean, which, even at the 62d degree of latitude—that of the Feroe Islands—has never descended lower than zero (Cent.); while the other owes, in a great measure at least, to the same influences, the high degree of its mean winter temperature."

Important as doubtless are the circumstances already mentioned towards constituting a favourable climate, others are scarcely less so. With a suitable latitude, a proper exposition, a right direction of mountain ranges, combined with proximity of the sea, we may have a mild climate; but the latter will not necessarily prove healthy. Nor does the salubrity of a country depend exclusively on the elevation of the soil above the surface of the water surrounding the territory, or flowing on its surface. Much is due to the nature of the mineral strata constituting the soil. So far as regards Italy, this question, whether considered in a geological or a chemical point of view, is deserving of special attention; for we have already seen that on the surface of her soil there exist numerous sources of miasmatic exhalations, which spread their baneful influences far and wide. Impressed with the importance of the subject, Dr. C. enters into many details which our limits compel us to omit. It will be sufficient to remark that, on the higher points of the Alps and Apennine, we find the granite. On the slopes, and sometimes far into the interior of the land, calcareous rocks of secondary formation predominate. They are very compact; are characterized by a fine and close grain; and resist, during a long series of years, the action of decomposing agencies. They are found as far as the limit formed by the line of Bergamo, Brescia, and Verona in northern Milanese; as also in localities of great salubrity, such as the Gulf of Gaëta, the coast of Amalfi, and from Policastro to the borders of the Ionian Sea. The plain of the Milanese rests upon a thick chalky stratum, which extends along the western and eastern edges of the Apennine, as far south as the frontiers of the Neapolitan States. It is covered over with a more or less powerful diluvium, and with deposits of comparatively recent date, the materials of which furnish aliment to the magnificent vegetation of this portion of the Italian soil. From Turin to the farthest confines of the Calabrias, the hills and various accidents of the territory skirting on each side the great peninsular chain, present a soil of marine and paludal origin, which has received the name of sub-Apennine. Its aggregates have but little solidity, are very porous, and possess great affinity for water, with which it is easily and frequently saturated; a condition which, when not carried beyond certain limits, is favour-

able to vegetation; but, when aided by high atmospheric heat, may prove detrimental to health. To these various species of soil must be added others which may be denominated accidental, and exercise a great influence on the character of the climate—*i. e.* the volcanic. In Italy, they are extensively distributed, and found not only in the territory of Naples, and one of the islands of the Gulf, where, to say nothing of Vesuvius, they retain a certain degree of activity, but also in the Campagna di Roma, and even about the city of Rome itself.

In the Papal States, this volcanic soil extends from Aquapendente to Nettuno, situated on the maritime and northern edge of the Pontine Marshes. After Terracina, at the southern limits of those marshes, as also on the secondary mountains of Gaëta, the volcanic soil reappears constituting the Phlegrean fields. The volcanic products of the Roman States consist, in great measure, of tufas and porous substances easy of decomposition. Those of the Phlegrean fields are more various in their structure—consisting of the different varieties of lavas, some of which undergo decomposition in a comparatively short space of time; of tufas and scoriæ which soon lose their physical characters; sulphurous products of various kinds, &c.

"What," as Dr. C. asks, "are the effects of those sulphurous emanations on the healthy conditions of the air? Do they render this fluid more exciting, more electrical, or less salubrious? These are questions of too much importance not to be taken up at a future period. At present, it is sufficient to state that the structure of volcanic soils favours more readily the process of decomposition than that of less compact soils which have been formed during the course of the regular periods of geological ages."—p. 19.

Dr. C., in continuation of this subject, next notices the changes that have taken place in the dimensions of certain portions of the Italian coast, by the receding of the sea and the consequent extension of the land. Of this phenomenon, that part of the Roman coast where are situated the mouth of the Tiber and the city of Ostia, affords a fit illustration. For here, the coast has received and continues to receive such extensive additions, that there exists now a maritime margin or surface of about four miles in extent between its former and present limits.

"This partial revolution has not resulted merely in pushing back far inland the old city, formerly the seaport of Rome, and in separating from the sea the ancient mouth of the Tiber. It has placed the city in the centre of an insalubrious territory of which it formerly occupied only the edge, and has been the cause of its progressive depopulation. We know that formerly Ostia was too small for the number of its inhabitants, and figured among the magnificent cities of Latium. At present, it contains only a priest, a tavern-keeper, four or five soldiers, and a few families, which do not venture even to reside in it all the year round. But this insalubrity is not limited to the city, for inasmuch as the miasmatic elaboration is conducted on a large scale, in consequence of the increased extent of the surface, there has arisen, since the time of the Romans, a new source of morbific effluvia, which must be taken into account when we inquire into the sanitary conditions of the country, though more especially when the wind blows from the sea. Lancisi has traced the comparative limits of this progressive extension of the coast, which in his time was already considerable, and we may, from that, form an idea of the enlargement of the Roman desert. The revolution which has displaced the coast of Ostia has operated, though less powerfully, on other points of the peninsula, and principally on the coast of the Mediterranean. They constitute so many additional sources of insalubrity, which circumstances, depending on human industry, have unfortunately only tended to increase, or at least to perpetuate. These elements must be united to those furnished by the inland regions of the territory, and, like them, be

taken into account in the analysis of the partial influences, as well as of the general characters, of the climate."

We cannot here follow our author into the developments he indulges, in relation to the extent and mode of cultivation, as well as to the products of the soil, of the several regions of the Italian peninsula, the changes they have undergone since the Roman period, and other subjects of kindred nature. All we can do is to call attention, very summarily, to one on which he dwells in detail—the almost entire removal, destruction, or degradation of the forest trees of many parts of the country. That in some respect the result has proved injurious, there can be but little doubt; but in many others, it must have been salutary, by removing sources of terrestrial and atmospheric humidity, and modifying and equalizing the temperature. Thus it is found, that snow no longer dwells long on the cold summits of the Soracte, as was the case in the days of Horace. The Tiber is no longer covered with ice, as described by Juvenal; and Pliny could not now complain of the rigorous cold, which destroyed the myrtles in his gardens at Laurentinum.

Of all the countries of Europe, the Italian peninsula is that in which water is found in the greatest abundance, whether in the form of seas, surrounding its extensive coast, or of rivers irrigating its surface, of lakes, of stagnant marshes, &c. Water, indeed, constitutes one of the most essential conditions of its climate. Of the extent of the general influence exercised by the waters of the sea on a surface, the width of which from the Mediterranean to the Adriatic is not considerable, some idea may be formed when we take into consideration the amount of coast which the peninsula presents; and which, commencing at Nice on one side, terminates at the Venetian territory on the other. Supposing the coast to be smooth and free from indentations, the line of shore washed by the two seas would amount to no less than six hundred leagues. But as these indentations or accidents are numerous and of great depth—more so, indeed, than in any other European country, England excepted—the amount of coast greatly exceeds those limits. In Europe generally, the difference has been inferred by Mr. Nagel to be as 1 to 3.03. In Italy, it is considered to be much more extensive, or as 1 to 5, furnishing, therefore, a surface of coast of not less than 3000 leagues. With these facts before us, we cannot but perceive the extent of the influence which the sea must exercise on the country—an influence which, from the deep indentations of the coast, is not restricted to the edge of the latter, but penetrates, in many places, far inland.

This liquid surface, as may easily be perceived, is an extensive source of evaporation, and affords us a ready explanation of the abundant nocturnal dews, and of the frequent clouds observed in those regions. Scarcely less influential in the production of these effects is the evaporation from the water, running and stagnant, situated on the surface of the country. In that part of Northern Italy which is enclosed on three sides by the high ridges of the Alps and the Apennine, comprising Piedmont, the Duchies, a part of the Papal States, and the Lombardo-Venetian kingdom, rivers, large and small, as well as other streams, exist in large numbers, and on a large scale, and form, on that vast surface, by their serpentine course, by crossing many lakes, and feeding the numerous canals made for purposes of irrigation and inland communication, a close net-work containing an immense amount of water. Dr. C. remarks that, laying aside the Po, whose extent is an object of wonder and admiration to him, as to all Europeans unacquainted with our American rivers; laying aside, also, those immense lakes, the Laggo Maggiore, the Laggo di Como, and the Laggo di Guardia, which he compares to inland

seas, we find that the canals of the Milanese alone irrigate, in the fine season, a surface of not less than 168,900 hectares, or about 422,250 acres. From this immense and well-distributed liquid surface, great benefits to agriculture and commerce undoubtedly result; but it is not less evident that it must, at the same time, from the vast amount of evaporation accruing from it, exercise an injurious effect on the state of the atmosphere and the condition of the climate.

The more southern section of Italy—which Dr. C. denominates maritime—though less, is still amply provided with running streams, besides being, from its narrowness, more under the influence of the evaporation arising from the seas by which it is surrounded. Add to all this, the extensive evaporation, most of which is of an impure character, arising from the rice plantations of the Lombardo-Venetian kingdom, the Venetian lagunes, the *battures* of the Po, the marshes of Aquileia, the great lakes of upper Italy, the marsh surfaces extending from Baia and Puzzoli to Gaëta, the Pontine marshes, the maremme of the Etruscan coast, the less numerous, though still extensive marshes found on the Adriatic side, as far as the territory of Otranto, those situated along the coast of the Ionian Sea, as well as from the numerous lakes, scattered in various directions, as Bolsena, Bracciano, Trazimene, Fusino, Peroli, &c., and we shall at once perceive that the importance attached to the vastness of the evaporation in question has not been exaggerated. The modifying and injurious effects which under any circumstances could not fail to arise from this cause, will readily be understood to be greatly enhanced, if we take into consideration that much of this evaporation occurs from localities where the water is stagnant, and contributes to the formation of pestiferous exhalations.

We talk often, and foreigners talk still more, of the paludal or marshy and insalubrious condition of a large portion of our country; but, if we turn our attention to Italy, we shall find that, making allowance for the diminutive extent of the country compared to ours, it is, as a whole, far richer in such sources of exhalation, and that the inhabitants, while luxuriating in the mellowness of their atmosphere, and admiring the beauty of their sky, may rest assured that they are breathing an air, and exposed to other external agencies, far more injurious than those encountered on this side of the Atlantic. Be this, however, as it may, from the immense evaporating surface existing in the whole peninsula, as well as from the peculiar configuration of the country, we are prepared for the fact that the quantity of rain that falls is considerable. This is shown by the following schedule which Dr. C. borrows from Gasparin's *Météorologie Agricole*:—

1. *Southern or Maritime Region.*

Winter.	Spring.	Summer.	Autumn.	Whole year.
m m.				
195.2 (7.8 inches)	194.2 (7.8)	133.2 (5.3)	291.7 (11.7)	804.3 (32.2)

2. *Northern or Continental Region.*

139.2 (5.6)	253.1 (10.1)	275.6 (11.3)	353.8 (14.1)	1021.7 (40.9)

From the results grouped together in this schedule, we perceive that the quantity of rain which falls in continental Italy is much larger than that obtained in the southern region of that country. This fact, which, from the circumstances of this region being pressed on each side by an extensive sea, might appear extraordinary, did we not know that the Lombardo-Venetian kingdom is covered with numerous rivers, lakes, canals, and agricultural marshes, and presents, therefore, an extensive surface to the action of evapo-

rating agencies. Nor must we fail to bear in mind that the country is enclosed by high mountains on three sides, and offers, from its configuration, an obstacle to the mobility or free movement of clouds; while in Southern Italy, on the contrary, the open surface existing on each side of the Apennine, allows an uninterrupted passage to the clouds in the higher regions of the atmosphere. We perceive also, from the same statement, that in the whole of Italy more rain falls during autumn than during either of the other seasons, the latter months of the year being the true and almost only period of very heavy rains, and, as a consequence, of those terrible overflows which return at short intervals and occasion so much injury in various parts of the country. We find, moreover, that the quantity of rain is not distributed in the same manner in the northern as in the southern regions of Italy. In the former, the quantity which falls in winter and autumn scarcely exceeds that obtained in spring and summer. In the other, on the contrary, the amount in winter and autumn exceeds that in the other two seasons by nearly 6-5 inches (160 *m.m.*). When we add to this the diluvian character of those rains, by which an immense quantity of water, sometimes that of a whole winter, is accumulated on the earth in the short space of a few days or weeks, it is evident that the nebulous or cloudy condition of the atmosphere cannot be of long continuance, and that to humidity must succeed a comparative state of dryness, which continues without interruption for some time. This explains the serene beauty of the winter and autumnal seasons in several parts of the peninsula.

In the northern region, beyond the Apennine, matters assume a somewhat different character. During the winter months, comparatively little rain falls, but during the three other seasons the quantity is abundant, and is distributed in each season, and almost in each separate month, with tolerable equality. From this regularity it may easily be inferred that the rain cannot fall in very heavy showers, for besides that these manifest themselves in one season only, they are prevented by a variety of influences from occurring often in the course of the whole year. Hence these heavy showers are of rare occurrence, and often altogether absent, the rains being of a light character, often repeated, and sometimes of long continuance. This hygrometric condition produces naturally a cloudy state of the atmosphere, which, without excluding periods of dryness, and a certain purity of the air, renders them somewhat unfrequent compared with what occurs in the southern region of the country.

Need it be remarked that this humid condition of the atmosphere, the enfeebling and depressing effects of which are well known, exercises a decided influence over the physical and moral character of the inhabitants of those regions of Italy where it predominates.

"The Lombard does not possess the coloration of the Italian of the southern region. Though he has not degenerated completely from the men of iron to whom he traces his origin, his face betrays a certain degree of paleness, which is particularly remarked in women, among whom the power of physical resistance is more feebly developed. When this effect is not corrected by some suitable agency—ventilation, for example—it shows itself in a marked degree, and attains a morbid form in deep valleys surrounded with woods, and containing lakes."

"When we enter the regions of those autumnal rains which seem to deprive the sky of humidity and clouds for the rest of the year, we remark, with a different elevation, signs of a greater activity, produced, doubtless, in part, by the temperature, but arising, also, from the circumstance that the humidity exercises there a less prolonged influence on man than in the north."

Dr. C. properly remarks that this rule is not absolute, and that in many instances a variety of circumstances are found to conceal, or even destroy, the effect. But in some localities it manifests itself in a very marked degree, as, for example, at Sorrento, in the Gulf of Naples. In Tuscany, which serves as a place of transition between Southern and Northern Italy, there is a city placed at the outlet of the last valley of the Arno, and not far from the shores of the Mediterranean, where rain falls frequently and the atmosphere is often cloudy—Pisa. Here the population presents the characteristics assigned above to individuals exposed to the almost continued influence of a humid atmosphere.

Our author next notices the brilliancy of the sky of Southern Italy, a brilliancy which strikes with astonishment individuals arriving from the north of Europe, or even of France, and consists in a vivid and luminous azure, very similar to that characterizing the equatorial sky. It is observed in all parts of that region, from the upper limits of the kingdom of Naples to the Ionian Gulf. From the entrance of the Gulf of Gaëta, where it commences abruptly, the landscape appears more brilliant, clear, and very neatly and accurately defined, thereby indicating the absence in the atmosphere of any notable quantity of aqueous vapour. In Central Italy the azure is much less vivid, and the atmosphere presents a vagueness and indecision in the landscape which denote a higher degree of humidity than in the Neapolitan States. At the period of sunset, and during the twilight, the vapours are condensed, expand, and assume the most variegated and gorgeous hues. But this spectacle, though often magnificent, and presenting a mellowness characteristic of the harmonious sky of Latium, is far from possessing the dazzling brilliancy of the sunsets on the coast of Calabria and in the Gulf of Naples. When we ascend in a northern direction, and proceed beyond the mountains of Etruria, the sky is found to assume a different appearance. It is far from possessing the brilliancy of the sky of Naples, and the refined tone characteristic of that of Central Italy. The azure is feeble, and presents a milky hue similar to that observed in northern regions. As there, also, the clouds are condensed in rounded masses of unequal size, whitish, and fringed at the edges, and dark in the centre; while the light stultifications of the Roman sky are as seldom observed as the vivid azure of the southern region, except, perhaps, it be on the coast of the Adriatic.

Much has been said in antiquity and in modern times of the winds of Italy. It is a subject of considerable importance in a climatological point of view, and well deserves the attention which has been paid to it from the days of Pliny to our own. But we have only room for a few remarks upon it. The atmosphere, during spring, is calm, and the winds proceed from the west. The easterly currents, which are warmer, succeed to the former in proportion as the summer season advances. To these follow the southern winds which spread heat over the Italian soil. Towards the eighth of July the Etesian winds begin to manifest themselves. Emanating from northern regions, and being regular in their return, they disperse the clouds, keep up the serenity of the sky, and exercise a dry and tonic influence very different from the enervating effects resulting from the action of southerly winds. About the close of the hot season the wind again blows from the south or the collateral points, and the atmosphere becomes heavy and oppressive. Autumn is characterized by the northwest wind—the most impetuous of all those that prevail along the Italian coast. Finally, the wind, in winter, blows from the north.

"This wind must not, however, be confounded," as Dr. C. remarks, "with

the Etesian, for if the latter is directly opposed to the south wind, the other has for its antagonist the southwest. This hibernal wind is therefore the northeast, or, more properly speaking, the north-northeast, which by the Greeks was denominated Boreal, and by the Romans Equilon."

This enumeration and distribution of the Italian winds, which is little more than those recorded by Pliny (lib. ii.), apply particularly to the Mediterranean coast. Thus, on that side of Italy, the spring winds which impart warmth to the atmosphere, whose temperature had been lowered during the winter season, encounter no obstacle.

"They pass over the sea, which is warmer than the earth, and spread over the surface of the coast, to which they impart an agreeable degree of heat. But they cannot reach the Adriatic zone of the country without passing over the Apennine, and becoming cooled by contact with the snow which covers the top of those high mountains. The spring wind of the Adriatic coast is hence the east, and not the west wind, for the latter must be arrested on the side of that high ridge which divides the peninsula into two parallel zones. For the same reason, the east wind is more readily felt on the Mediterranean shore; since it must, like the former, pass over the Apennine. We have seen that during the summer season the prevailing winds were the south and Etesian. The latter, which proceed from the north, have a free access on both sides of the territory, and are equally felt on the Adriatic and the Tyrrhenian coasts. Not so, however, with regard to the equatorial winds. In consequence of the inclination of the western coast, which leans from northwest to south, the west, southwest, and south winds reach the coast in a direct manner; while on the other side, which presents a contrary exposition, the southwest and south winds penetrate with difficulty, the passage being free only for the southeast and east winds, and those occupying an intermediate position between the latter and the north winds."

The statements made in respect to the southerly winds apply to the northwest—the *mistral* of Provence, the *sciron* of Athens, and the *circius* or *cers* of some parts of the south of France. Like the west and south winds, the latter, which takes its origin or assumes the peculiar character it afterwards exhibits, to a greater or less extent, in the south of France, passes freely along the Mediterranean coast of Italy; but on the other side of the Apennine, where the topographical condition of the country is diametrically opposed, its influence is but slightly felt.

As may be inferred from what precedes, the north and northwest are the coldest winds of Italy, and, though sometimes attended with hail, they usually accompany clear weather. The north-northeast is mostly attended by a grayish and snowy hue of the sky, which generally ends with a fall of snow. The damp winds are the south and southwest—the *auster* and *Africus* of the ancients. The driest is the northwest; the hottest the south; the mildest and mellowest the southeast and west; finally, that most conducive to health is the north-northeast. The most enervating is the southeast, or *sirocco*, which prostrates the moral and physical energies of the inhabitants. This deleterious influence which is felt to a certain extent in the south of France, from the Pyrenees to the mouth of the Rhone, attains the greatest intensity in Italy, and especially in that part of it facing the Ionian Sea and the Grecian Archipelago. It is, like other southerly winds, charged with humidity.

"Its action on the human organization during the summer season," says Dr. Salvagnoli, "cannot be exactly expressed by words. When it prevails, persons in good health feel prostrated, their muscular movements are sluggish, the head is heavy and painful, they feel sleepy, and their appetite decreases. Convalescents easily relapse, and the sick become worse."

The south wind (*mezzogiorno* of the modern Italians) presents great analogy to the *sirocco*, especially during the hot and oppressive days of autumn. Nevertheless, imbibing, as it does, less humidity in winter, it disperses the clouds that arise from northern agencies, and contributes thereby to the production of clear and fine weather. This takes place sometimes in summer, but is necessarily more frequently observed in winter, from the excessive aqueous saturation existing in the former season, and the feeble degree of it occurring in the latter. The southwest wind, which, from the place of its origin, was anciently denominated *Africus*, and is called by the modern Italians *libeccio*, bears, in many points, a great analogy to the preceding. It is damp and rainy, but differs from the *sirocco*, which, though sometimes strong, is seldom violent, and from the *mezzogiorno*, which is usually calm, in this that it scarcely ever prevails without agitating the atmosphere tempestuously. The west wind, the zephyr of the ancients, and the *ponente* of the Italians, is warm in spring and cool in summer. The east wind, the *subsolanus*, or Levante, is milder, but less serene. The north wind, or *tramontana*, is characterized by a low temperature, and great dryness, produced by its passing over an extensive continental surface. It disperses the clouds, and is an attendant on fine weather, though in winter it is accompanied with snow, and in summer with hail. It exercises a fortifying agency on the human system, and must be considered as the best antidote against the enervating effects of the *sirocco*. The north-northeast is very violent, and blows frequently over the peninsula. It is often attended with a dry, though sometimes with a humid, condition of the atmosphere.

We pass now to the temperature of Italy. The country, considered in its *ensemble*, presents most, though not all, of those causes which Humboldt has enumerated as favouring the development of a high annual average of atmospherical heat: *i.e.*, proximity to a western coast in the temperate zone—the configuration of a continent presenting peninsulas and inland seas—the relations of position of a part of that continent either to a sea free from ice, and extending beyond the polar circle, or to a considerable extent of continental surface placed between the same meridians, under the equator, or in some part of the tropical zone—the preponderance of southerly or westerly winds, at the western extremity of a continent of the temperate zone—chains of mountains serving as means of shelter against the action of winds proceeding from colder regions—the absence of marshes, and the clearing of an arid and sandy soil—the habitual serenity of the sky during the summer, and the proximity of some southern stream rolling waters of a higher temperature than that of the surrounding seas. At the same time the country, doubtless, presents some of the conditions of locality which, according to the same eminent traveller and philosopher, tend to counterbalance the former, and thereby contribute to lower the annual mean temperature. But, on close examination, it will be found that the causes of calorification preponderate, and that from their agency, aided by other circumstances, the country derives the mild climate for which it has ever been noted. More than any peninsula in Europe it is intersected by gulfs, surrounded by seas, and covered with rivers and lakes. The width of the territory, from the Mediterranean to the Adriatic, is of limited extent, and the whole surface, from the foot of the Apennine to the margin of the former sea, is consequently freely exposed to the action of the western influences, which tend to raise the temperature. That the heat should be more notably felt on the western than on the eastern side of the Apennine is easy to conceive, when we bear in mind that the former is more open to the agency of westerly winds, which preponderate in the zone of mid-

dle latitudes in both the northern and southern hemispheres, and effectually raise the temperature during the winter season; that these winds are, from the extensive barrier of the Apennine stretching from one extremity of the peninsula to the other, protected from any serious antagonism; that the topographical conditions on that side are such as to favour the admission of those winds, and of those proceeding from the south; that the soil has been very extensively cleared, and is thereby enabled to feel, in a direct manner, the action of solar heat; that from the serenity of the sky during the summer months, no obstacles are thrown to the direct calorification of the earth, of the watery surfaces, and of the lower strata of the air; and that, to some though limited extent, the influence of the southern stream which produces such heating effects on other parts of the European coast—that of the Gulf Stream—is felt on the western side of Italy. To this it may be added that the other coast is less indented, and its depressions are less extensive; that while the Apennine protects the Mediterranean side from the influence of northerly and easterly winds, which have free access on the other, the same chain secludes, in great measure, at least, the Adriatic zone from the genial effects of southerly and westerly breezes, and that this side is exposed to the influence of a large continental surface, deprived of sea, and extending uninterruptedly to the polar region.

Two isothermal zones pass over the Italian peninsula—the one more southern extends between the 59th and 68th degrees of temperature of Fahr. (15° and 20° Cent.); the other, which is northern, extends between the 50th and 59th degrees (10° and 15° Cent.). The first, or warmer zone, is bounded on the south by the African shore of the Mediterranean, and on the north by a line which, on its exit from the Atlantic, passes over the superior frontier of Portugal, the sub-Pyrenean regions of Spain, the ancient province of Roussillon, and a portion of the coasts of France and Liguria; next cuts across the Italian peninsula, above Rome, somewhere about the frontiers of Tuscany, and after passing over the Apennine suddenly extends to the Adriatic. The second zone, which is colder than the former, includes the upper region of the territory, from the limits traced above Rome to the northern and western confines of the Milanese. It is that under which are placed France and the southern portion of the Britannic group. By this arrangement we arrive at a knowledge of the extreme limits of the temperature. The higher or warmer zone passes over the African coast, the colder to the north of France and Germany. The mean temperature in the former does not exceed 68°, while the mean in the latter does not descend so low as 50°. Nor is this all. The isothermal line which divides the warmer zone from the colder, after crossing the Apennine, inclines suddenly towards the south before extending to the sea, thereby leaving behind it a large territorial surface consisting of the regions bordering the Adriatic. The isothermal line divides, therefore, the eastern zone of the peninsula into two sections, the mean temperature of one of which must be higher than that of the other—an effect due to a difference in the character of the winds that prevail; the northeast, cold and dry in the one; the southeast, hot and damp in the more southern section. In the eastern, or Adriatic zone of the peninsula, the difference between the isothermal and isochimenal lines, or of equal summer and equal winter heat, is much greater than is found to be the case on the Mediterranean or western side of the Apennine. Thus at Bologna, which, in the former, occupies a central position between the superior confines of the Lombard kingdom and the northern frontiers of the Neapolitan States, the mean temperature in winter is 35° F., and in summer 77°; while at Lucca, which is in nearly the same

latitude, but on the western side of the Apennine, the mean temperature in winter is 40° (4.6 Cent.), and in summer 74° (23.6 Cent.).

On the western side of the peninsula the isothermal line assumes a rather different course. We have seen that the line which separates the southern from the northern zones passes above Rome, and after having crossed the Apennine inclines suddenly towards the south. In doing so it describes a curve, which encloses within its concavity the whole of the Gulf of Genoa, the territory of Lucca, Tuscany, and the rest of Italy. Hence, whilst on the western side of the Apennine, this isothermal line, by ascending southwardly, expands the region of high temperature, on the other, or Adriatic side, it gives rise to contrary effects, for, by descending towards the south it diminishes the limits of the hot region. It may be remarked, in conclusion, that, however widely the various places in this section of the country may differ in regard to latitude, they approximate closely in respect to their winter and summer mean temperatures. Naples presents a mean temperature in the former season of 50° (9.9 Cent.), and in the latter of 74° (23.9). Rome gives 47° (8.3) in winter, and 73° (22.9) in summer. Lucca, as already seen, exhibits a winter temperature of 40° (4.6) and a summer temperature of 74° (23.6); and finally, the thermometer at Nice gives 49° (9.3) in the former season, and 72° (22.5) in the latter. This analogy of temperature in places so distantly situated from each other must, of course, depend on the preponderating influence of some general agency, which Dr. C. very properly traces to the southerly winds.

It is a fact too well understood to need illustration in this place, that a humid and hot constitution of atmosphere, particularly in the vicinity of the sea, is attended with the development of electric and meteoric phenomena. Dry heat accumulates electricity in the higher regions of the atmosphere; a humid state of the air, on the contrary, attracts it to the surface of the earth. The details into which we have entered relative to the western territory of the Italian peninsula show that it is particularly well disposed to promote the manifestations of those phenomena. The Mediterranean, from the numerous and extensive irregularities of the coast, penetrates deeply inland and forms a series of inland lakes, which present very extensive surfaces to the action of the atmosphere; while the country abounds in lakes and marshes. These surfaces exercise an active agency in promoting electrical communication between the inferior and superior strata of the atmosphere. The same effect is powerfully aided by the numerous peaks and sharp points by which the central mountain chain is characterized, and which perform the office of condensers; while the volcanic constitution of the soil naturally tends to increase the development of the fluid. From this development, which manifests itself in various ways and in various degrees of intensity, necessarily result effects more or less evident on the population exposed to its influence. Hence in every part of the western coast—with the exception of high and mountainous districts—the effects in question are strikingly observed. Thus, as Dr. C. remarks, if we visit Naples, or Rome, or Florence, and inquire into the physiological and pathological conditions of its inhabitants, we shall find that the nervous system plays the principal part in the acts of life, and that the activity of the function of innervation is carried beyond the limits of health.

He remarks that he had occasion to see, at Naples and Florence, individuals who exhibited curious examples of nervous disorders unknown in France and in the north of the European continent; and that, in investigating the general physiognomy of the most common disorders, he was not surprised to find that the principal element appertained to the domain of sensibility.

"From this we would infer that the climate of the western zone of Italy is one of nervous agitation—of organic perturbation—from which the inhabitants suffer, and the sick should be shielded."

Fortunately these inconveniences are not constantly carried to a very great extent; being temporarily checked or diminished by particular conditions of the atmosphere. Violent storms, which in certain seasons are of frequent occurrence, spontaneously dissipate violent electric tensions; while the vesicular vapour which is almost constantly present in the air acts as a drain, which keeps up a sort of equilibrium in the high regions of the atmosphere, and thereby prevents, in ordinary times, the effects from being unduly felt.

It has thus been seen, that Italy, considered in a climatological point of view, may be divided into two regions or zones, separated from each other by the Apennine chain. The western receives the influence of the warm or southerly winds—the eastern zone is exposed to that of opposite currents. In the former, the evaporation being, from the higher temperature of the atmosphere, more considerable than in the latter, the humidity is greater also, but not of long continuance; in the latter, the heat being of less amount, the humidity is not so great, but continues longer. From these circumstances, there results a difference in the nature of the rains. In the western zone they fall in heavy showers, and only during a single season; in the eastern, they continue longer and are more equally distributed throughout the several seasons. In the former, the atmosphere is more frequently clear than in the latter. In the former, also, the hygrometrical constitution of the atmosphere, the condition of the soil, and the position of the country promote the development of electricity; in the latter or cold zone, contrary conditions prevailing, the electrical developments are less marked. In the former, again, the thermometer, owing to the position of the territory, ranges higher in winter and lower in summer than in the latter; but with more frequent oscillations in the barometer. Finally, the western zone is largely supplied with sources of miasmatic exhalation; while the eastern, though not entirely free from them, are much more favourably conditioned in that respect.

But, although a line of distinction may be fairly drawn between the climates of the western and eastern zones of the Italian peninsula, the differences exhibited are not equally striking in every portion of the territory. A difference in the situation of places, or in the relative position of the seas or continents, occasions not unfrequently in their climate a new source of influence by which the latter is more or less modified, and made to approximate that of localities distantly situated. This is exemplified on both sides of the Apennine.

"In the portion of the Adriatic coast forming the extremity of the peninsula, the atmosphere is under the control of the S. and S.E. winds. This region is almost as warm as the surface along the coast of the Mediterranean. This condition prevails as far as the Gulf of Manfredonia, at which point much greater changes occur. The southerly winds continue to prevail; but those from the E. and N.E., and even from the N., begin to predominate. As we advance northwardly, this predominance increases, until it finally becomes complete, and thereby lowers the annual mean temperature. On the western coast, the character of the influence changes at the angle formed by the Apennine above the Ionian Sea. As we ascend along the Calabrias, it becomes more marked; it does so even higher, notwithstanding the occurrence of the N.W.—the *maestro* of the Italians. Finally, in the plains of Latium, and on the coast of Etruria, the influence of the southerly winds becomes modified; not so, however, with respect to the W. wind, the intensity of action of which has not diminished. But, when the Apennine and the coast suddenly assume another and different direction, and instead of proceeding from south to north, do so from east to west,

the southerly winds again become predominant, and conditions analogous to those existing before are re-established."

Having entered fully on the climate of the western and eastern zones of Italy, Dr. C. passes to the consideration of that of the three divisions he has made of that country, the Southern, Central, and Northern, and of the different important cities they contain; premising some general remarks on the atmospheric condition and topography of each of those divisions. Nor is this division purely arbitrary. It is justified by the difference observed in the sky of the southern provinces of the central territories of the peninsula, and of the continental regions of the Milanese. Equal differences are discovered in the products and modes of cultivation of those different parts, as well as in their temperature. Interesting and important, however, as this subject may be, ably as the author has treated it, and useful as it doubtless would be to point out the results of his investigations, we have no room to present even a brief abstract of these, and proceed at once to the consideration of the climate of individual cities or districts. But, even in relation to these, we must restrict our inquiries within narrow bounds, and content ourselves with presenting some remarks on a few of those places usually resorted to by invalids, and most deserving of regard in medicinal and prophylactic points of view—Naples, Rome, Pisa, &c.

Naples.—Though the city and basin of Naples are apparently surrounded on all sides, that of the bay excepted, by high mountains, the effect of which may be supposed to shelter them from the active influence of winds from the principal points of the compass, experience shows that the protection they really afford is very limited and imperfect. These mountains are all ancient volcanic cones, whose original shape has been disfigured through the action of time and the work of man. Posilipo, which extends as far as Capo di Monte by successive hills of greater or less elevation, constitutes the most efficient portion of the barrier. From Capo di Monte to Vesuvius, the hills gradually lessen in height, and leave large interstices between them; and it is only at the extremity of the arc, in other words in the region of Vesuvius, that the basin becomes effectually protected. The gulf being open to the S. W. and W., the winds blowing from those points have free access to the quays of the city. If to this we add, that the basin of the latter experiences the effect of those winds that extend over the adjoining hills, and along the edges of the two lateral branches of the Campanian gulf, we shall at once perceive that the atmosphere of the place must be subject to numerous vicissitudes. The bay front of the city being semicircular in shape, the extremities and centre projecting out, it follows that the exposure of these two divisions is not similar, and that the winds which exercise their action upon them are different also—the one being open to the N. N. W., and the other to the S. W. From its exposition and topographical condition, which we cannot particularize here, the former is under the powerful influence of the N. W. wind or *mistral*—which, as we have seen, is the most impetuous and searching of all those that visit the Italian coast. It blows violently along the quays of the Margellina, as far as that of St. Lucia. Posilipo offers an obstacle to the N. wind—the Somma does the same as regards the E. wind; but the N. E. finds admission through the depression existing between Capo di Monte and Capo di China; the S. E. and the S. pass along the sea margin of Vesuvius, or cross the gulf and over the high ridges of Castellamare and Sorrento; and the S. W. and W. penetrate freely into the city from the open expanse of the Tyrrhenian Sea. Hence the less frequent currents are those from the east, the southeast and the north; and the most frequent those that blow from the

sea or along the edges of the gulf. The scale of the proportional influence of those various winds may, according to our author, be stated as follows: The S. W. or *libeccio*, which is predominant at Naples, being represented as 5, the S. will be found to prevail as 3; the N. as $2\frac{1}{2}$; the N. W. as $2\frac{1}{4}$; the W. as 2; the N. as $1\frac{3}{4}$; the S. E. as $1\frac{1}{5}$; and the E. as 1. From this we find that the northern influences stand as 6; while the antagonistic winds stand as 9.

The superiority of action of southerly winds, which, before reaching Naples, pass over water surfaces of great extent, imparts to the atmosphere of that part of the Campagnia a considerable degree of humidity. These winds prevail particularly during spring and summer, and continue till the opening of autumn, sometimes as late as winter. But though predominant during that long period, they are so only in a relative manner; being often replaced by the Etesian winds, which, as has been stated, promote the serenity of the sky during the summer, and exercise a great influence over the atmosphere of the peninsula.

Rain falls in greater abundance during the months of October and November. December, during which the north winds prevail frequently, is comparatively free from rain; and January still more so. The driest months are June, July, and August—particularly the first and third—an effect due to the regular supremacy of the Etesian winds. The amount of rain which falls during the course of the year has been differently estimated. M. Cavasco states it at 950 millimetres, or 38 inches, and De Renzi at 750 millimetres, or 30 inches; while our author thinks the estimates of the former too high, and those of the latter too low. Admitting this to be well founded, we may presume the quantity to amount to 850 millimetres, or 34 inches.

Owing to a variety of causes of a topographical character, the climate of Naples exhibits frequent alternations in regard to the degree of humidity. This fact, which may startle those who, without personal experience on the subject, are familiar with the praises which poets have lavished on that climate, is amply verified by the results of accurate hygrometrical and barometrical observations. Clouds frequently accumulate, rain falls often, and heavy thunder showers are not rare. The changes are sudden and extensive, and vary considerably in the course of a single day; while it may be assumed that the proportion of fine and clear days, comparatively, to those of a contrary character—gloomy or rainy—varies from one-fifth to one-fourth.

If we inquire into the effects on the economy of the more important winds which prevail at Naples, we find that the south-west, though cloudy and rainy, does not impair the energies of the system so effectually as other southerly winds. The south and south-east—the *ostro* and *sirocco*—which present a great analogy to each other in their effects, and penetrate freely into an extensive section of the city, exercise on the inhabitants the enervating influence we have already described. The north-west (the *maestro* of the Italians), which, as we have seen, blows violently along a large portion of the bay side of the city, is cold and damp; and, among other morbid influences, produces a violent and hurtful impression on the skin and on the nervous system.

These unfavourable conditions of the climate, resulting from the causes mentioned, are in some measure corrected or counterbalanced by the elevated temperature of the atmosphere. The annual average height of Fahrenheit's thermometer at Naples may be estimated at 60° (16.5 Cent.); that of other localities of the bay being about 59.5 (15.9). The winter average in the

former is 49° (9.8); that of spring 60° (15.2); of summer 74° (23.8); and of autumn 61° (16.8), or even 62°.6 (17). It is remarked by our author that the difference in the averages of the several seasons not being very considerable, the consequences resulting from it would not be of a serious character, were the transitions to occur gradually. But, if temperature modifies the physiological effects of winds, these moderate or neutralize the effects of the former. In consequence of the manner in which the succession in the course of the aërial currents takes place, they change completely, from morning to night, the character of the climate, producing a sharp dry cold, after having promoted a hot and humid influence. But though from these and other circumstances we may not expect to find the thermometer rising very high, and descending quite low, yet the maximum temperature does not exceed 101° (38.7), while the minimum is scarcely ever lower than 23° (or 5° below zero, Cent.). Naples is subject to those meteoric phenomena which more particularly appertain to northern climates. Ice is common in winter, snow falls not unfrequently, and hail may be regarded as of common occurrence. Finally, the atmosphere is often charged with electricity, and contaminated, in many parts, with volcanic emanations.

From all these circumstances—the frequent atmospheric vicissitudes, the electrical tension, and the impure composition of the air resulting from its admixture with emanations of a stimulating character—there results for the animal economy an influence of a most exciting kind, which increases gradually the mobility of the nervous system, and acts very powerfully on strangers who visit that part of the Campanian territory. But the effects of the climate vary somewhat in the different portions of the city and its environs. The quays from Posilipo to Chiatamone are spacious. At the furthest extremity they extend to the beach; in other parts they are separated from the latter by a garden of great magnificence, *la Villa Reale.* This is the fashionable part of the city, and is mostly frequented by foreigners. The garden, as our author very properly remarks, has the disadvantage of weakening the influence of the west wind, which is cool in summer and genial in winter; but, at the same time, it has the advantage of freeing that part of the city, which is denominated Chiaja, from the more or less perturbating effect of the south-west wind. The west wind reaches more freely that portion of the quay nearest to Posilipo, and which, in consequence, is warmer. The front part of the city, from Posilipo to Sta. Luccia, is under the influence of the cold and damp searching blast of the north-west, which blows along its extensive margin with irresistible impetuosity. It is of much more frequent occurrence than usually supposed; for, during the autumnal and winter seasons—those in which it prevails most generally, though not exclusively—we hazard nothing in saying that it blows more or less continuously during some portion of every fourth day. To delicate temperaments and valetudinarians the effect is highly injurious. It suddenly checks perspiration, occasions acute thoracic affections, and deranges more or less seriously the organs of the circulatory and nervous systems. To individuals in feeble health, and to the sick generally, we cannot too strongly insist on the propriety of avoiding this locality, magnificent and agreeable in many respects as it undoubtedly is.

The part of the city situated beyond the cone of Saint Elmo extends from west to south-east, and is sheltered from the effects of the north wind, which passes over it, as also in great measure from those of the north-west. It is healthy, and would be still more so if kept in a proper condition; but it is objectionable as a residence for invalids, from the too rapid ascent of the streets, and its exposure to the influence of the south-west wind.

In that portion of the city located on the other side of the street of Toledo, which constitutes the eastern and southern districts, and where we must look for the site of ancient Parthenope, the injurious influences are not felt. We need not dwell on this locality, as its narrow, obscure, and irregular streets offer no attraction to, and will naturally be avoided by, travellers and invalids, who, if such were not the case, would be deterred from residing there by the long-recognized insalubrity of the soil. This insalubrity extends beyond the inhabited portion of this district, and manifests itself in the form of intermittents on the outside of the city wall, and on the level surface extending from the foot of Capo di Chino, la Somma, and Vesuvius to the sea. Be this, however, as it may, the eastern and southern portions of the city present some advantages over the northern. Its atmosphere is less oxygenated and less exciting, being free from the influence of the north-west winds; while Vesuvius shelters it from the enervating effects of some of the southerly currents. Its atmosphere does not, like that of Chiaja, suppress perspiration, or affect injuriously the nervous system, or the organs of the pulmonary and circulatory apparatuses. It is the zone of chronic, not of acute diseases. Whilst, therefore, invalids, those particularly who are affected with thoracic and neuralgic complaints, must avoid that part of this region presenting the unfavourable characters above pointed out, they may advantageously select another, situated between Capo di Chino and the superior extremity of Toledo, where they will find level streets and imposing and elegant monuments, where the southerly winds prevail with less energy than elsewhere, and where the air is renewed through the healthful influence of the north-east.

But although some benefit might be derived in pulmonary complaints from a residence in this locality, it is doubtful whether the benefit is sufficiently marked to justify the recommendation of Naples as a place of residence to individuals affected with tubercular phthisis; for even the most favoured spots are, to a certain extent, subject to the atmospherical vicissitudes we have noted as forming a characteristic peculiarity of the climate of that beautiful city, and which, as is well known, acts injuriously in this and other forms of pulmonary disease. It is objectionable, moreover, from the exciting influence of the atmosphere—which, as already stated, stimulates strongly the nervous system—as also from the difficulty experienced here of resisting the pleasure of daily excursions to places of interest; a course suitable to few, and which cannot be indulged in with impunity in all cases. "Le séjour de la capitale des deux Siciles ne doit être recommandé qu'aux malades qui n'ont pas besoin de se condamner pour guérir, à la retraite et à l'inaction." The opinion of our author on this subject is not different from that entertained by Sir J. Clark, who, after condemning the climate for consumptive patients, remarks that it is well suited for those who are labouring under general debility and derangement of the constitution without any marked local disease.

Dr. C. agrees with De Renzi and others in regarding some parts of the Bay of Naples as appropriate places of resort for phthisical patients, and as preferable in that respect to the city itself. In speaking of Puzzuolo, the temperature of which is mild and agreeable, he refers to the statement of that Italian writer, who considers the air of this place as highly beneficial in phthisis, especially when the disease is complicated with acute irritation of the mucous membranes of the larynx, trachea, bronchiæ, and digestive organs. That the environs of Naples have been supposed to abound with that disease—more so, indeed, than Paris and its vicinity, where the disease prevails extensively—is certainly true. It has been shown, for example, in corroboration of this, that while deaths by tuberculization in the hospitals of Naples

occur in the proportion of one to two and one-third of the entire mortality, they are found in the civil hospitals of Paris to be as one to three and one-quarter.* But it should be borne in mind that, whatever may be the unfavourable results obtained in the Neapolitan establishments, such results cannot be adduced against the climate of Puzzuolo, since the sick admitted in those hospitals, and who fill up the list of consumptive complaints, mostly come, not only from Naples itself, but also from other places in the vicinity, where the disease is of very frequent occurrence. The climate of Puzzuolo being of a nature calculated to mitigate, or even remove the symptoms of phthisis, must necessarily produce equally favourable effects in diseases of kindred character, chronic bronchitis and laryngitis, and the like. De Renzi attributes a large share of this beneficial agency to the sulphurous vapours issuing from the soil of these regions, and which, aided by the mild temperature of the atmosphere, impart, as he thinks, balsamic qualities to the latter, and thereby render it useful in the diseases mentioned.

Dr. C. is not less disposed to entertain a favourable opinion of the effects of the climate of Mola de Gaëta in pulmonary complaints, particularly in that form of phthisis attacking individuals of a lymphatic temperament. It is also beneficial in nervous affections, characterized by a tendency to prostration, when it is necessary, while allaying excitability, to impart tone to the system.

Rome.—The climate of Rome and its environs has been the subject of extended inquiry, and occupied the pen of many native and foreign writers. Dr. C. has examined it somewhat in detail, both in a general and medical point of view, and has more accurately than any of his predecessors, as we think, indicated the peculiarities by which it is characterized, the causes of these peculiarities, and the physiological, pathological, and medicinal effects to which they give rise. But in doing so, he has enlarged on many points of a topographical nature, which, though highly useful and interesting as well as necessary towards a clear elucidation of the subject, are somewhat foreign to the object we have in view; and must, therefore, be passed by unnoticed. The Rome of modern times is not located on the same surface as the Rome of former days. It occupies the site of the ancient Campus Martius—to the north of the other; while the City of the Emperors was situated on the seven historic hills, and on a plain which extends in a southerly direction, and is now almost deserted, and more or less covered with ruins. The position of the old city was highly unfavourable to health. The surface upon which the population thronged commences at the southern extremity of the Cœlian and Esquiline hills. It inclines in an eastern and northern direction, passes behind the Viminal and Quirinal, and, extending beyond the gates of St. Jean Lateran and Sta. Maria Maggiore, stretches nearly as far as the hills of Albano and Frascati. The city was exposed, therefore, to the free action of the south and east winds, the effects of which were not counterbalanced by those of the northern currents, whose access was in great measure impeded by the mountainous ridges situated at the back part of the plain, and which were at the time covered with thick forests. From this the temperature of ancient Rome must have been higher than that of the present city; and this excess of heat, operating on a surface covered with marshy pools and stagnant water, and consisting of a volcanic and imperfectly consolidated soil, accounts for the insalubrious nature of the city. This injurious effect was doubtless in great measure corrected by the draining of the soil and the erection of

* Journé, Recherches Statistiques sur la Phthisie en Italie, Bul. de l'Ac. de Méd, vol. iii. 542.

aqueducts and analogous monuments; but the result was not entirely successful.

The Rome of modern times presents conditions of a very different character. Though enclosed on the east by the Pincian, Quirinal, and Viminal hills, and on the west by those of the Vatican and Janiculus, the valley of the Tiber is not completely sheltered on either side from the influence of the winds blowing from those directions. At the same time, owing to the position of other hills and distant mountains, the south winds, which, as above stated, had free access to the ancient city, reach the modern with some difficulty, being in a measure impeded in their course by the Capitoline and Palatine hills, and other irregularities of the soil. From this, and from the fact that the northerly winds have a freer access to modern than they had to ancient Rome, we find an additional reason for inferring that the temperature of the former is lower than was that of the old.

The condition of the soil of the Campus Martius, which is now covered with streets, was, and is now in some of its parts, of a character suitable to the production and accumulation of humidity. Low and flat, and bordering on the Tiber, it was, and is still to a certain extent, subject in particular seasons to overflows. That part of it which was called the Velabrum, and from the nature of the commerce to which it was appropriated, received the name of *Forum Boarium*, was regarded in ancient times as highly insalubrious. It forms a connecting link between the old and the modern city, is occupied by the lowest classes of the population, is characterized by narrow streets, irregular pavements, and a defective level, and is now as unhealthy as it was in former days. The insalubrity of the surface upon which the city stands has been greatly lessened. Purified by Leo the Tenth, the soil was soon covered with streets; churches and houses were multiplied; and, before the close of the reign of that pontiff, the population amounted to 60,000. The narrow valley between the Tiber and the foot of the Pincian hill, by which we now enter Rome, was transformed from a vast marsh into the beautiful Piazza del Popolo; and other quarters were, by succeeding pontiffs, greatly ameliorated.

The city is abundantly supplied with water of good quality, not by twenty-four aqueducts, as in ancient times, but by three—those of the Aqua Vergine, the Aqua Felice, and the Aqua Paolo; and though the supply—9,025 inches (French), or 180,500 cubic metres in the twenty-four hours—would not have been sufficient, had the inhabitants retained the habits of bathing for which their ancestors were noted, it is amply so for drinking and ordinary household purposes.

We have stated that the north winds have free access into the city, and that those from the south are in a measure impeded in their course. This impediment is not so effectual, however, as to prevent them from preponderating over the former. The direct opposition in the several points of the horizon whence are derived the prevailing winds accounts for the sudden transitions which occur in the anemological conditions of the atmosphere. These transitions are less frequent during the day than in the morning and evening. During the former period, the south winds prevail; during the latter, though particularly in the morning, the antagonistic currents have the ascendency. Calandrelli states the proportions of warm and mild winds—S. E., S., S. W., and W.—to be 62 in 100. Other authorities give analogous results. But this law of preponderance is not absolute, the northern winds being in some years more frequent than the others. According to the Italian writer just cited, the most frequent wind is the *Africus*, or southwest, which reaches Rome by

Albano, Ardea, or even the sea. Next in point of frequency appears the south wind, then the north-northeast, next again the southeast, or *sirocco*, and lastly, the northwest, or *mistral*.

The preponderance of damp over dry winds imparts to the climate of Rome hygrometrical conditions of a marked character. Everything contributes to this effect—the position of the country—its exposure to the influence of a large expanse of sea—the river, and its periodical overflows, and the condition of the surrounding surface. We have already referred to the immense amount of water carried to the various sections of the city by means of aqueducts and subterraneous canals. At present the quantity which reaches it does not amount to more than one-sixth part of that obtained formerly, while the largest share of the balance has been lost, and has contributed to the formation of marshes or lakes, with which the depressed portions of the soil of the surrounding country are studded, and which tend to keep up a humid state of the atmosphere. At Rome, indeed, the hygrometer seldom indicates a state of complete dryness. Rain falls to the amount of a little over 32 inches (29 inches French). The average number of rainy days in the year, in a series of 39 years, is 114; the minimum being 58 (1828), and the maximum 158 (1784).* The number of clear days, or those in which the sun shines, is tolerably large. In 1784 it amounted to 58, in which the sky was perfectly clear; while that of cloudy days was 93. In 1828 there were 84 of the former and 45 of the latter. The atmosphere at Rome is far from being so clear and brilliant as at Naples and in Calabria—the light being mellowed by the existing humidity. The high temperature in the city and environs is promoted by the topographical disposition of the country, which is mostly enclosed by a semicircular chain of mountainous ridges, but open in a western and southwestern direction, by which access to the warm and humid currents is allowed. Were it not, indeed, for the antagonistic influence of the north winds, the thermometer at Rome would attain a very considerable degree of elevation. As it is, the prevailing heat is equal to that of more southern regions; the city occupying the same isothermal position as Gaëta, Naples, and Calabria. In a series of twenty years the mean annual temperature was found to be 60° (15.46 Cent.). Winter gave 47° (8.01); spring 58° (14.29); summer 73° (22.91); and autumn 61° (16.49). From this it will be seen that the difference between winter and spring is not so great as that between spring and summer; while the difference between summer and autumn approximates closely to that between spring and winter. The maximum heat is 100.4 (38°); the minimum 23° (5.9 below zero), showing an oscillation of near 77° (44). Hence Rome presents very hot, and sometimes very cold days. The Soracte, "the giant of the Roman horizon," is almost every year covered with snow. Ice is often formed, and in the winter of 1812–13 was thick enough in the lake of the Villa Borghese, to bear the weight, during several days, of numerous skaters. Snow falls, on an average, one day in every year. In 1784 it did so during five days.

It follows, from what precedes, that, notwithstanding the intense heat and sharp cold of some days of summer and winter, the atmosphere of Rome is rarely extremely dry or extremely humid. Our author has, in imitation of Sir James Clark, noted this quality of the Roman climate, and, like that distinguished writer, ascribes to it the superiority which the air of that city possesses over that of other localities of Italy and France. But this advantage

* In 1826 it was 82. There were 30 days of fog.—*Giornale Arcadico.*

is in some measure counterbalanced by the frequent thermometrical and hygrometrical depressions which occur in that climate—changes which have been noticed from time immemorial, and caused the climate of Rome to be accused of inconstancy. Fortunately, however, the physiological effects resulting from them are not so great and injurious as might have been anticipated, and are in part corrected by the peculiar condition of the air; for, notwithstanding the real depressions of the hygrometer, the peculiar mellowness of the atmosphere does not disappear completely, and the impression it produces continues to be felt, though often feebly, even in the coldest days of winter, by individuals whose constitutions are unused to the influence of cold latitudes. Such changes occur particularly during the first weeks of winter. After December, northern influences predominate, and cold and dry winds prevail; but they seldom continue more than a few days at a time, and are succeeded by others of an opposite character. Towards the close of February, cold days become less frequent, and spring, which is very precocious, opens in April—sometimes as early as March. This season, which in many respects resembles the summer, approximates, however, closer to winter as regards the mean temperature. The transition becomes more sensible toward the close of May or the beginning of June, the former of which months is sometimes very hot. During June and July, the force of evaporation attains its highest point, and meteorological changes are very frequent, as manifested by a clear and dry atmosphere, alternating with showers of rain, attended with electrical phenomena. This is the season of the Cattiva aria, which continues till September, when the heat diminishes in a notable manner, or even till October, one of the pleasantest months of the year, and the favourite among the Romans. Finally, November bears some analogy to October, while December is characterized by an alternation of heavy rains, and sharp, cold weather.

In former days, that part of Rome on which the population was accumulated, and which is now almost deserted, was healthy—comparatively so, at least; while the insalubrious sections were the Campus Martius, the Velabrum, and other parts bordering on the river—the site of the modern city. Whether this freedom from fever in the old city arose from a positive degree of salubrity in the soil, as has been thought, or whether the change has arisen from the operation of natural or accidental causes; or whether, again, the difference is to be accounted for, as is done by Brocchi, by the greater power of resistance possessed by the ancient inhabitants, and arising from more robust constitutions, and better habits and customs, are points which, though interesting, cannot be enlarged upon here. Be it as it may, the reverse is now the case; for, as we approach the inhabited parts of the present city, through the space separating St. John of Lateran from the Forum and the Velabrum, we pass over the principal focus of the pestiferous exhalations. On the other hand, the surface of the Campus Martius, or even the whole valley, is free from this tainted atmosphere. The very section appropriated to the Jews—the Ghetto, where the precepts of public hygiene are sadly neglected—is comparatively healthy. The only exceptions to this freedom from the fever are to be found in the Velabrum, in the district of St. Peter, and on the surface extending from the river to the foot of the Janiculus—the latter of which seem, however, to derive their insalubrity from the miasmata exhaling from the soil of the ancient city, and which reach them with facility through the agency of the south winds.

On the bad air (*aria cattiva*) of Rome and its environs, a subject which has occupied the attention of many native and foreign physicians, from the

days of Lancisi to our own,* Dr. C. enters somewhat fully in a separate chapter on the Pontine and the Tuscan marshes, and more briefly in that devoted to the city itself. Without going so far as Lancisi and his followers in regard to the nature of the cause of that bad air, he seems disposed to reject the theory of Folchi, Santarelli, and others, who refer the effects observed to the mere action of thermometrical and hygrometrical vicissitudes; and advocates the opinion of the agency of an organic matter variously combined with sulphuret salts, and promoting by its presence the decomposition of such of these as may be contained in the water, and the consequent evolution of the deleterious agent, which he supposes to be sulphuretted hydrogen. It may not be improper to remark, while on this subject, that the theory which ascribes fever to the morbid operation of this cause, and which had found advocates in Europe and this country long before our author thought proper to uphold it—Drs. Daniell,† Gardiner,‡ Melier,§ &c.—is supposed to derive support, so far at least as regards Rome, from the extensive exhalation of this gaseous fluid issuing from the soil. Such an exhalation is easily detected, if not everywhere about, at least in many parts of, the campagna and in the Pontine marshes. The odour by which it is characterized is rendered still more perceptible when the soil is, by any means, uncovered. This exhalation (as also that of carburetted hydrogen) has been noted by various investigators, and dwelt upon by resident physicians in their explanation of the causes of the diseases incident to the country. Dr. Gonel, who practiced for many years at Rome, lays particular stress on both in some valuable MS. notes furnished by him to Dr. Valentin,‖ and remarks that the olfactory nerves and respiration are often greatly incommoded by them.

The same observation has been made in the adjoining country, and finds a ready explanation in the circumstance that Rome is surrounded by extinguished volcanoes, and that the basin in which it stands was in all probability of like nature. Mr. Riccioli, who performed most of the experiments recorded by Brocchi in his excellent work on the soil of Rome,¶ confirmed, in conversation with the writer of the present article, all the conclusions to which that eminent author had arrived. They could never, it is true, detect any extraneous principles in the atmosphere of the insalubrious regions; and animal substances were not found to putrefy sooner in such regions than in damp localities situated within the healthy quarters of Rome. Yet, while averring these facts, which correspond closely with those observed elsewhere, Mr. Riccioli confirmed, to a certain extent, what Dr. Gonel stated to Dr. Valentin relative to the escape of gaseous fluids from the shores of the Tiber.

* *Lancisi*, De nativis dague adventitiis Romani cœli qualitatibus. *Ib.* De noxiis paludum effluviis. *Doni*, De restituenda salubritada aeris Romani. *Cognati*, De Romani aeris salubritata. *Perri*, Ragionamento al popolo sulle cagioni delle morti improvvisa fraquentemente accadute in Roma. *Michel*, Recherches médico-topographiques sur Rome et l'Agro Romano. *De Matthais*, Ratio instituti clinici Romani in praefatione. *Brocchi*, Esperienze sull' aria cattiva dei contorni di Roma. *Folchi*, Considerazioni sopra un articolo Inglese riguardante un opinione particolare del Sig. Brocchi (Giornale Arcadico Gennajo, 1823). *Folchi*, Sulle origine delle febbri intermittenti in Roma e sue campagna. *Micara*, Della campagna Romana e del suo ristoramento. *Minzi*, Sopra le generi delle febbri intermittenti specialmente di Roma e della sua provincia australe. *Santarelli*, Richerche interno alla causa della febbre perniciosa dominante nello Stato Romano. *Thouvenel*, Traité sur le climat de l'Italie.

† London Med. Gaz. vol. xxviii. p. 669 (1841).

‡ Am. Journ. of Med. Sci. N. S. vol. v. p. 279.

§ Rapport sur les Marais Salans, Mém. de l'Académie de Méd. vol. xiii. p. 611, &c.

‖ Valentin, Voyage Médical, p. 98.

¶ Dello Stato Fisico del Suolo di Roma.

He collected, in 1818, large quantities of carburetted hydrogen, in various spots along the river, and found that it escaped from the edge of the latter, and even, in some places, as far out as twenty feet from the shore, but never from the dry land itself. The results of these experiments were subsequently published by Dr. Morrichini* (Professor of Chemistry at the Sapienza), who analyzed the air obtained.

M. Riccioli inclined to the belief that deleterious gases may escape from the soil by means of crevasses or other openings—natural or artificial—and that when mixed with the atmosphere they may, though producing febrile diseases, escape detection. But this he merely offered as a conjecture, and acknowledged that the experiments made by him, with a view to ascertain its correctness, had led to no satisfactory results. The same intelligent naturalist was, like many others, of opinion that cultivation would ultimately *cure* the country of the pestilence under which it now so severely suffers. We state these facts without laying much stress on them ourselves, so far as relates to the causation of fever; for, were this the proper place, it might be shown that neither carburetted nor sulphuretted hydrogen is adequate to the effect in question—existing in large quantities where fever is scarcely seen, and being absent in localities proverbial for their insalubrity.

The Pontine marshes have often been regarded as the source of the fever of Rome and its immediate environs. Dr. Carriere himself seems disposed to lean to this belief, or at least to think that they contribute, to some extent, to the production of that effect. For our part, we can discover no just reason for coinciding in that opinion. In the first place, it may be remarked that the marshes in question are separated from Rome by a chain of hills, on the south slope of which are situated the towns of Velletri, Genzano, and Albano, and the villages of Nemi and Arricia. These are all peopled by a robust and hardy race, little, if at all, subject to the morbific effects of the *aria cattiva*. Now, to suppose that the Pontine marshes extend their hurtful agency to the plain and suburb of Rome, we must admit also that, while such is the case, the exhalations issuing from them pass over the chain of hills in question, without injuring the inhabitants of these towns and villages, in order to exercise their baneful effects at a distance of several miles from the latter. Nor is this all. If we adopt the theory in question, we shall be called upon to explain how the *aria cattiva*, if it come from the Pontine marshes, happens to spare elevated spots in and about Rome—the Quirinal, for example; while it exercises a deadly action in low places—as the Villa Borghesi—situated in the same direction as, but beyond, the former, and which ought, were such theory correct, to be protected by them.

Neither can we suppose the fevers of Rome to arise from exhalations issuing from the marshes of Mecaresi, Porta, and Ostia. These are comparatively small, and at a distance of six leagues from the city, and, besides, separated from it by the wooded and cultivated hills of Monte Verde, as well as by the Janiculus and Vatican, which ought to prove a sufficient obstacle to the diffusion of the morbific cause, supposing it probable for the latter to be wafted from those localities. The other marshes of Pontano and Regillum, in an eastern and southern direction, are by far too small to be chargeable with the effect in question. In a northern direction, the environs of Storta, of Isola Farnese, and, indeed, all the Veientine territory, are sickly, though not under the influence of marshes or stagnant pools; and, if the disease can there prevail independently of such sources of exhalation, we can

* See letter to Brocchi in the Giornale Arcadico, vol. viii. p. 2.

have no reason to deny that such may also be the case at Rome, and that in most of its districts where the fever appears it is evidently due to the action of local causes, and to the vicissitudes of temperature, aided, as exciting causes, by exposure to night-air, the action of dews, &c.

Dr. C., like many others, regards Rome as one of the best medical stations of the peninsula for persons labouring under pulmonary tubercles. This moist atmosphere, he remarks, in which the humidity is never carried beyond proper limits, and in which the temperature—except at certain periods, the return of which may, from their regularity, be foreseen—never changes abruptly, has the effect of immediately ameliorating the irritation of the lungs. To this, however, he adds that the climate is not suitable to all periods of the disease. When prostration is not carried very far, it acts favourably, by calming and diminishing irritation; in the contrary case it acts as an additional cause to the existing prostration, and under its influence the remaining strength may diminish very rapidly. Sir J. Clark, in like manner, found it beneficial in the early, and injurious in the latter stage. Pure tubercular consumption is not of very frequent occurrence at Rome, the greater number of chronic pulmonary complaints being the effect of common inflammation. Acute inflammations of the lungs are frequent, violent, and rapid, and Dr. C. thinks that the climate favours the occurrence of hæmoptysis, which in the advanced stage of phthisis is, as is well known, a very unfavourable complication. The most proper time for having recourse to the Roman climate is about the close of winter or the opening of spring, or again, about the beginning of autumn, and especially during the magnificent month of October. What has been said of tubercular affections of the lungs applies equally to kindred diseases. When the irritation is connected with a fair degree of strength, the climate is beneficial; under contrary circumstances it is hurtful and must be avoided. It acts favourably in rheumatic diseases, in chronic affections of the skin, and in all complaints which call for a prolonged continuance of high temperature. It is also recommended in nervous disorders of the digestive organs. Dr. C.'s remarks accord with those of Professor De Matthais, Sir J. Clark, and others, as to the peculiar sensibility of the nervous system among the inhabitants of Rome, especially females; as evinced by a disposition to convulsions, and a morbid sensitiveness to perfumes; a peculiarity which could not have prevailed in the days of Horace, from whom, and from Plutarch, we gather that the Romans of old were fond of flowers. Indeed, the change must have been of comparatively recent date; for Panorolo, who lived about the eighteenth century, recommended them, as well as musk and amber, to be placed in sick rooms for the purpose of purifying the air.

Pisa.—Few cities of the peninsula, as our author very properly remarks, enjoy a more ancient and well merited renown, in a medical point of view, than Pisa. This renown, far from diminishing, has increased in proportion as experience has disclosed the effects of the climate; and at the present day, there are few patients affected with tuberculization of the lungs who, after trial, do not attribute to it a more beneficial influence than to that of more southern or western localities. That this preference is, in the main, founded on the peculiarities of the climate, there cannot be a doubt; but we are disposed to attribute weight to the opinion of those who refer it, in part at least, to the influence of other causes. Etruria may justly be regarded as one of the finest regions of Italy; the environs of Florence are delicious; the valleys leading from the Etruscan capital to Pisa present a succession of tableaux full of charms and animation; the baths of Lucca and Pisa complete

the attractions of this territory, to say nothing of the historical reminiscences it recalls, and the beauty of the monuments it contains.

Pisa, as a medical station, owes much to its geographical location, but more to the peculiarities of its topographical character. Situated at the entrance of the last valley of the Arno, the surface extending from it to the sea coast is, for the most part, flat, or devoid of important irregularities. The Arno divides the city from east to west, and in so doing forms a curve, the concavity of which faces the south. This portion of the river side, which by the Tuscans is denominated *Lung Arno*, monopolizes, in consequence of its situation and configuration, during the greater part of the day, the genial influences of the sun's rays, while it is open to the free action of the southerly winds, and sheltered from that of antagonistic currents. It is in consequence the spot selected by invalids, who there meet, in addition to a climate appropriate to their ailings, a degree of tranquillity contrasting greatly with the noisy bustle of Florence and other Italian cities; but which in many cases is essentially beneficial. The sky of Pisa is in perfect harmony with the tranquillity of the city, deprived, as it is, of the sparkling brilliancy of that of southern localities. Rain constitutes an essential characteristic of the climate, and, as such, has been mentioned by poets and historians. It does not fall as in Naples, and in the Roman Campagna, in heavy showers, but in a continuous manner, the quantity being distributed in such a way as to furnish a tolerably large proportion during even what may be called the dry season. The average annual amount is stated by some authorities to have reached above 46 inches, (1 metre 205 m.m.). Taking the annual average of three years, winter has been found to furnish 10.5 inches (255 m.m.); spring 9.1 inches (229); summer 7 inches (175); and winter 19 inches (475); presenting a total for the year of 45.4 (1134 m.m.). From this large amount, and frequent occurrence of rain, it may easily be foreseen that the hygrometer indicates ordinarily a very humid condition of the atmosphere, and seldom points to dryness, and that the barometer shows as seldom the existence of a strong pressure. Nor could it be otherwise. While Pisa is sheltered, in great measure, at least, from the action of northerly or dry winds, by a chain of high mountains, it is open to the southern influences. From this and other circumstances connected with the relative position of the sea and other watery surfaces, it must naturally follow that the atmosphere acquires great humidity; for the winds which predominate necessarily pass over those surfaces before reaching the city; the east and northeast along the valley of the Arno and the lakes of the southern part of the territory of Lucca; the southeast and south over the territory of Leghorn; and the southwest and west over the surface of the Mediterranean.

The mean temperature of winter is estimated at 45° (7.83 degrees Cent.); that of spring, 58° (14.82); summer, 74° (23.23); and that of the autumn, 63° (17.31); giving for the entire year a mean temperature of 60° (15.82). The latter is somewhat higher than the average of Rome, which, as we stated, is 59.5° (15.46); but the mean temperature of winter is somewhat higher in the latter city than at Pisa, as is proved, not only by the fact just stated, compared with the result obtained at Rome; but, also, by a comparison of the average minimum temperature in the two cities during that season. It is to be remarked, however, that though inferior to Rome in regard to the temperature of winter, the inferiority is not felt in every part of the city. It is so outside of the walls, and in those parts that are exposed to northern influences. In some other parts, and especially on the side of the river facing the south, and heated, during the greater part of the day, by the action of the sun, and which,

in consequence, is selected as a place of residence by the sick, the thermometer rises several degrees higher than elsewhere, and gives, during winter, a mean temperature much superior to that of any part of Rome. But, if the climate of the latter city is, notwithstanding the occurrence in winter of cold winds, warmer in that season than that of Pisa, the latter, although relatively colder, is very mild, owing to the predominance of humidity, and the rare occurrence of cold and dry winds. Hence the prostration produced by the two climates is different, and must be referred to the action of different causes. In the one place, it is produced by an excess of humidity; in the other, by an excess of heat.

The mild climate of Pisa, according to our author, diminishes the exaltation of sensibility, and calms pulmonary irritation in certain forms of temperament. On individuals of a nervous temperament, it will act favourably; on those of a lymphatic temperament it will produce a contrary effect.

"This quality of the air, which is efficacious in the first stage of phthisis, and perhaps in the commencement of the second, may become promptly fatal, if the disease has already undermined the powers of the system. In the midst of that silence which enervates by benumbing the faculties, and when under the influence of those causes which relax the fibres and destroy the vital activity, prostration makes rapid strides, and hastens the fatal issue."

This fact is admitted, according to Dr. C., by all the physicians of Pisa, and should be borne in mind by those who recommend a change of climate to phthisical patients. Under other circumstances, and in individuals of a nervous temperament, a different effect is obtained; irritability is calmed, pain is lulled, while the patient enjoys the bodily and mental repose so absolutely necessary for the amelioration or removal of the disease. But while the climate of Pisa produces beneficial effects in some stages of pulmonary consumption, and is, therefore, a suitable place of resort for invalids, Dr. C. remarks that it not unfrequently promotes hæmoptysis even in individuals who had not before experienced that symptom; an effect which he attributes not to any exciting quality in the atmosphere, but to its relaxing effect on the capillaries of the lungs arising from excess of humidity. These cases, however, are of comparatively rare occurrence; and he is of opinion that the complication thus produced may be advantageously combated by a recourse to sulphurous mineral waters. He does not approve of Pisa as a place of residence for such phthisical or other patients as labour under a depression of mind and despondency, and thinks that the quietness and silence of the place would increase this morbid condition, and tend thereby to aggravate the evil.

Before leaving this subject, it may not be uninteresting to remark that in latter times much has been done by the Tuscan government to drain, improve, and cultivate the marshy surfaces and maremmes which occupy so large a share of the surface of the country. The results, as regards salubrity, have been of the most favourable character. Fever and other complaints depending on miasmatic exhalations have greatly diminished in regions where they formerly prevailed to a very great extent. In 1840–1, for example, in a population of 103,343, the number of sick was 35,619, with a mortality of 1,316. In 1844–5, the population being 106,833, the sick lessened to 28,148, and the deaths to 986. During the intervening years, the improvement was progressive. As a necessary consequence of this improvement in the salubrity of those heretofore pestilential regions, as also of the favourable changes effected in the soil, the population has greatly increased. Thus, in a period of thirty years, from 1814 to 1843, the population of the province of Grosseto, which was 53,175, has reached the number of 76,179. It is somewhat curi-

ous that the increase in the maremmic provinces has been comparatively larger than in other districts of Tuscany. Thus, in the district of Florence, the increase has been 31 per cent.; in the territory of Pisa, 39$_{\frac{7}{8}}$ per cent.; in that of Sienna 20¼ per cent.; in the Aretine territory 23½ per cent.; while, as we have seen, the increase in the province of Grosseto has not been less than 43½ per cent.

The opinion has long been entertained in England, in this country, and elsewhere, that the atmosphere of fenny or miasmatic countries exercises a favourable effect on pulmonary complaints. Originally maintained, nearly forty years ago, by Dr. Wells,* it has been subsequently adopted by some of our own writers, and by Dr. Boudin† and others in France, and acquiesced in by the author of the volume before us, who adduces some important facts in its support. Judging, indeed, from the statements he makes on the subject, we may conclude that the antagonistic influence in question, which the reader need not be told, so far from being generally acknowledged, has, by high authorities, been positively contraverted, might be illustrated from the results obtained in various parts of the peninsula, and more particularly in the maremmic districts of Tuscany. We have seen that the climate of Naples, where intermittents are rare, is inimical to tubercular phthisis, and favours its development. Admitting, with Dr. De Renzi,‡ that the number of deaths from this disease occurring in that city amounts to one in 12 of the whole mortality, and not to one in 2¼, as maintained by other authorities§—a proportion larger than that obtained in London and Paris (one in 5 and one in 3¼)—we find, on examination, that this mortality, though thus greatly reduced, is still infinitely greater than that occurring in the marshy districts situated on the south side of Naples, as well as in the environs of Puzzuolo and Baia, which are paludal, in Rome and its campagna, in Pisa and in its vicinity, at Nice and other places equally within reach of miasmatic exhalations, and possessing a climate little favourable to the development of phthisis. In the Tuscan maremmes, during the year 1840, the number of cases of that disease was only 25 in 26,786 cases of disease. In 1841–2 phthisis presented a proportion of 27 in 28,138 cases; and the next year the proportion was 48 in 26,807. Thus out of a total of 81,731 cases of sickness, there were 100 cases of phthisis, or one in 817. From this we may perceive that the disease is there of very unfrequent occurrence, and that hence our author is justified in recommending the Tuscan maremmes as a favourable place of sojourn for phthisical patients.

The extent to which these remarks on the climate of Italy generally, and of Naples, Rome, and Pisa in particular, have reached, leaves us no room for examining the condition and medical influences of other parts of the peninsula. All we can do is to say, in a few words, that our author regards the climate of Sienna as useful in scrofulous affections, but hurtful in phthisis. He thinks that of Florence may also be advantageous in scrofulous diseases, characterized by inertia of the system at large, in some form of atonic paralysis, in melancholy, &c., but that it must be avoided by the phthisical. Venice is favourable to the development of nervous complaints; but febrile diseases, which are very common along the Lido and the continental shore, are unknown in the city. The climate acts favourably in phthisis and other affections of the lungs, being mild and exempt from sudden transitions. But, like that of Pisa, it is only useful in the early stage of the disease. The atmo-

* Trans. of Soc. for Improving Med. and Chirurg. Knowledge, vol. iii. p. 471, 1812.
† Etudes de Géologie Médicale sur la Phthisie. &c., Paris, 1845, p. 76.
‡ Traité des Fièvres Intermittentes, Remittentes, &c., Paris, 1842, pp. 72–5, &c.
§ Recherches Statistiques sur la Phthisie en Italie, Bul. de l'Ac. de Méd. 3, p. 542.

sphere of Menton and its vicinity is useful in the same complaints. It is mild, without excess of humidity; warm but not hot, and free from sudden thermometric and hydrometric vicissitudes. In cases of the disease occurring in scrofulous temperaments, the climate of that little place is preferable to that of Pisa, from a less degree of humidity. The climate of Monaco, on the contrary, is unfavourable in phthisis, but useful in chronic irritations, nervous or inflammatory, of the intestinal canal. That of Villefranche approaches in its remedial influences to that of Menton. Of Nice, which would deserve a more ample investigation than can be bestowed upon it on this occasion, we can only say that its climate differs considerably from that of Pisa, and even of nearer localities, in being less impregnated with humidity, and presenting a greater contrast in the thermometrical condition of the day and night. So far as relates to phthisis, it is, however, more favourable in that form of the disease which occurs in scrofulous temperaments, and calls not only for a mild, but also for a tonic atmosphere. Like Sir James Clark, our author is of opinion, that from a residence at Nice very salutary effects are produced in chronic bronchial diseases. Such patients, says Sir James, generally pass the winter with little comparative suffering from their complaint, and with benefit to their general health. They are here able to work in the open air, whereas if they had remained in England (or other colder latitudes) they would in all probability have been confined during the greater part of the winter to the house. The particular kind of bronchial disease most benefited by a residence at Nice, is that accompanied with copious expectoration, whether with asthma (humoral asthma) or otherwise, and in the chronic catarrh of aged people it is particularly beneficial. R. La R.

BIBLIOGRAPHICAL NOTICES.

ART. XIV.—*On the Threatenings of Apoplexy and Paralysis; Inorganic Epilepsy; Spinal Syncope; Hidden Seizures; the Resultant Mania; etc.* By MARSHALL HALL, M. D., F. R. S. L. and E. etc. etc. London, 1851: 8vo. pp. 90.

THE remarks of Dr. Hall on the important subjects treated of in the volume before us comprise the substance of the Croonian Lectures delivered by him at the Royal College of Physicians, in March, 1851. They are replete throughout with the deepest interest, and if their correctness shall be established by future observations, they remove at once all the obscurity in which the true pathology of apoplexy, paralysis, epilepsy, and other allied affections has heretofore been involved, and point out the true principles on which must be based all the means for the prevention of the attacks of these diseases—diseases in which, as the author correctly remarks, prevention is the all-important object of the physician. When a premonitory seizure has once occurred, it is so apt to recur, the susceptibility to recurrence is so difficult to remove, the effects of attacks are so dire, whether we regard mind or limb, that the *one object* of the patient and of the physician must be to watch the dawn, as it were, of the malady, and adopt with energy and perseverance every means of obviating such a calamity as a first or second seizure.

"The physician," Dr. Hall remarks, "is frequently summoned to cases in which, with or without an actual seizure, there is the *threatening* of an attack of apoplexy, of paralysis, of epilepsy, or of syncope. It is to these *threatenings*, to these *minæ*, according to the expression of Heberden, affections which equally alarm the patient, the patient's friends, and the physician, that I beg to call your serious attention.

"On the occasion of excitement or emotion, or of gastric irritation, or in the midst of the most usual occupations, the patient is seized with vertigo, or a momentary oblivium or delirium, or various affections of the senses, or loss of muscular power, especially of the speech, of the hand, or of one side, and flushes or turns pale, with intense alarm for fear of an apoplectic or paralytic seizure; or the eyes and head may become suddenly fixed, the pupils dilated, the countenance flushed, with obvious loss of consciousness, and there is the threatening of epilepsy.

"These *minæ* may last for a minute or two, and subside. But the patient is evidently in danger of a 'fit,' or seizure, and that of an apoplectic, paralytic, epileptic, or syncopal character; or such a seizure may actually take place.

"What are the hidden springs of action which have been called into play in these various circumstances? What is the rationale, what the modes and means of prevention?

"Some of these affections are of the slightest kind—'Nihil aliud æger sentit præter oblivium quodam et delirium adeo breve, ut ferè ad se redeat, priusquam ad adstantibus animadvatatur.' It is their obvious and fearful *tendency* which gives them importance.

"I have known mere *blushing* to become intense, constantly recurrent on every slight occasion, and attended by varied mental distress, and even to pass into an epileptoid affection; just as we have all known the flush of anger or indignation to pass into apoplexy. Mere 'sick-headache' sometimes passes into an affection of a far more formidable character. One patient experienced a sense of 'tightness' about the throat, with flushing, and the dread, and danger too, of some seizure, after taking indigestible food.

"In one gentleman, sudden attacks of loss of speech, or of the power of the hand to write, took place from time to time, at varied and rather distant inter-

vals, for ten or twelve years, leaving, at length, permanent inability to speak distinctly, or to retain the saliva perfectly, and a degree of paralytic weakness of one side. Ultimately, an attack was attended by a degree of stupor and stertor; he was 'quite unconscious to what was passing around him for ten or fifteen minutes, with loud snoring breathing, and then imperfectly conscious; and again, the next day, the mind seemed to wander at intervals, becoming, however, afterwards perfectly clear and composed.' Epilepsy itself could not be more paroxysmal.

"Another gentleman became liable to attacks of loss of the power of articulation, so that he was compelled to *point* to the objects he required. At one time he was seized with loss of the power of writing; at another, with transient hemiplegia. At length, the inability to write occurred from the mere flurry occasioned by the loss of his spectacles at a moment when it was his duty to sign some official papers. The next day he threw up his office, and, a day or two afterwards, he committed suicide.

"These are examples of what I have ventured to designate *paroxysmal* apoplectic and paralytic affections. Of epilepsy, as a paroxysmal affection, I need not now speak. But sometimes these seizures, instead of being apoplectic, or paralytic, or epileptoid, are *syncopal* in their external form and character. With or without previous flushing, the patient may become pale and faint, and exclaim, 'I am dying.'

"In some instances, again, these seizures take place *unobserved*, in the night, or in the absence of friends; and the effects and results of such *hidden* seizures are of the most puzzling character, until the occurrence of those seizures is detected, or at least suspected. These effects may be—a degree of stupor, of loss of memory, or of delirium; or actual *mania*, or amentia!"

In proceeding to consider the cause of simple apoplexy, or that resulting from congestion of the blood-vessels of the brain, Dr. Hall remarks that he hopes to show that the idea of "tendency" or "determination" of blood *to* the head is a mere fiction; that whatever the violence of the *arterial* circulation, there is no danger of over-distension of the encephalic vessels, so long as there exists no impediment to the return of blood along the veins. In apoplexy and kindred diseases this impeded return of blood from the head, according to Dr. H., is induced by a *spasmodic* action of the *muscles* of the neck on the veins of that region—an action evident in a vast many instances, though latent, perhaps, and to be inferred from the similarity of its effects, in others.

"To these conditions of the muscles of the neck, I venture," he remarks, "to give the designation of *trachelismus* (from τραχηλον, the neck). Its effects on the veins may be termed *phlebismus*. It is frequently to be *felt*, when it is not to be *seen*, on applying the finger. It is still more frequently to be traced and inferred by observing the *lividity* and *tumidity* of the integuments of the face and neck."

"Simple apoplexy, simple paralysis, not less than epilepsy and spinal syncope, may occur, recede, and recur, promptly, repeatedly, at varied intervals. Trachelismus, with its effect, phlebismus, is, indeed, to paroxysmal apoplexy and paralysis, what laryngismus is to epilepsy. Both are equally spasmodic, and subject to the laws of spasmodic affection.

"In the first instance, the remission or recovery from these seizures may be perfect. Afterwards, some permanent effect remains, and there may be a degree of inarticulateness of speech, a little tendency to the flow of saliva over the lip, or a little debility in the movements of an extremity; or the mental faculties, the power of attention, of apprehension, of memory, may be somewhat impaired, and nothing more.

"These effects are equally the result of apoplectic or of epileptic seizures, though more speedily of the former than of the latter.

"The causes, too, of these two forms of disease of the nervous system are the same—and chiefly, mental emotion and gastric irritation. The difference appears to be that in one case the cerebrum, in the other the medulla oblongata, is principally affected. This result may depend on the different susceptibilities of these different portions of the nervous system, or on the different channel through which the cause may operate in different individuals.

"In a third instance, that modification of action obtains, which leads to ghastly pallor and apparent syncope, frequently with sickness. Indeed, this sickness frequently plays an important part in paroxysmal diseases, occurring, as it does, in its slightest form of 'sick-headache,' or of what may be termed 'sick giddiness,' or in the form, or in the course of an apoplectic seizure."

Dr. Hall next proceeds to show the dependence of the lividity of the countenance, either with flushing and turgescence of the face and neck, or with pallor, which, after their paroxysmal form, is the most characteristic phenomenon of these seizures, upon impeded venous circulation. This same lividity and tumidity of the face and neck is frequently produced by mental emotion, gastric irritation, &c., and, in these instances, Dr. Hall maintains that they depend upon impeded return of venous blood and its inevitable effect, the distension of the blood-vessels placed immediately between the last branches of the arteries and the first roots of the veins, and of the latter vessels themselves; the result of trachelismus, or contraction of the muscles of the neck. He instances the popular expression—'choked with grief or with anger'—and instances the blush of shame and the deep flush of anger. Mere intense blushing, he remarks, he has distinctly traced into epilepsy, and the still more intense flush of anger has passed into apoplexy. With both the blush of shame and the flush of anger, there are frequently, and in proportion to their degree, a purple lividity of the face and neck, and even of the upper part of the thorax. Dr. H. has seen the same flush of the countenance, whilst the patient has *felt* a degree of stricture of the throat with the fear of some seizure, as the effects of an indigestible meal.

"The emotion of disgust, and gastric irritation, frequently issue in actual sickness and vomiting, involving closure of the larynx, or laryngismus, a partial trachelismus.

"In epilepsy, the state of the neck is obvious to the eye; the head is fixed, there is torticollis; and there is the '*facies nigrescens*' of Heberden. In the threatening of apoplexy, there is the same livid or purpurescent hue of the face, and the same paroxysmal character. Is it possible to doubt that, what is evident in the former affection, exists, though in a latent form, in the latter—the *effects* and the recurrent character of the affection being the same?"

In all these cases, Dr. H. believes that trachelismus intervenes as the connecting medium between the cause and its effects. The evidences of the occurrence of trachelismus in apoplexy are, the occasional *sensation* of strangulation, the purpurescence and turgescence of the face and neck, the loss of consciousness, &c., and the sudden accessions and recessions, or the paroxysmal form, of the affection.

"This trachelismus," he remarks, "probably occurs in the more deeply-seated muscles of the neck, and, according to the *degrees* or *kind* of impeded venous circulation, may lead to further *cerebral* or *spinal* symptoms; whilst the external evidence of its operation in the condition of the face and neck, varies from similar causes."

Dr. H. thinks it probable that the *first* stage of trachelismus is always *latent;* being *inferred* from the turgescence of the face and neck. The *second* is inferred from *cerebral* symptoms in some cases, and from *spinal* symptoms in others.

"It is an important question," Dr. H. observes, "how far the action of the muscles of the neck may be specific in different instances. Are the various phenomena of external blushing, or flushing, of the apoplectic seizure, and of the epileptic attack, the varied effect of the compression of the external and internal jugular, and of the vertebral veins respectively? These questions must, I think, be answered in the affirmative. But, the satisfactory *proofs* of these facts may still be wanting. The act of sickness, the effect of emotion, or of gastric irritation, is, however, perfectly specific and distinct.

"That action of the muscles designated *expression* takes place in the *neck* not less than in the face; and it is thus the first stage of trachelismus, as the blush of shame, and the flush of anger are the first shades of phlebismus, and, if I may venture to say so, of paroxysmal nervous affection."

Dr. H. believes that trachelismus and phlebismus take place during sleep—inducing slight turgescence of the countenance, vivid suffusion of the eyes, and

a sub-apoplectic state of the cerebrum and medulla oblongata. It is, he adds, a slight trachelismus, and frequently concurs with other causes in inducing the apoplectic and epileptic seizure.

The effect of a tight collar or cravat is next noticed—and its tendency under certain circumstances to induce an attack of apoplexy.

"The influence," says Dr. H., "of a tight collar or cravat is not duly appreciated. It may be slight in a state of repose, but on moving the head variously, the muscles of the neck expand: this expansion cannot take place *outwardly;* it, therefore, takes place *inwardly*, and so compresses the subjacent veins. It is on this principle, not, I think, generally acknowledged, that a moderately tight cravat may prove an unsuspected source of danger. Under the influence of such a cravat or collar, the not unusual action of the muscles of the neck becomes a sort of trachelismus, perhaps more frequently than is imagined. The cravat, too, which is not tight generally, may become so under the influence of sleep, of emotion, or of gastric repletion."

In reference to some phenomena which occurred in the case of a girl, affected with aphonia, to whose larynx galvanism was daily applied, Dr. H. remarks:—

"In these facts we have the *proof* that a slight degree of contraction of the muscles of the neck, induced by the electric current, induces, in its turn, heightened colour of the face, of a florid hue; and that a greater degree of that contraction induces a deeper colour of the face; the lips, and angles of the mouth being livid, and the eyes suffused, with confusion of thought, headache, dimness of sight, alternating with flashes of light; these latter remaining for a few minutes after the cessation of the current, and then disappearing. They present the *demonstration* of the nature both of trachelismus and of phlebismus, and of their effects."

"Instead of flushing and turgescence of the face and neck, we very frequently observe pallor, with or without sickness and faintness, in cases of seizure." "It is a case to be most carefully distinguished from ordinary syncope from sources of exhaustion, diseases of the heart, &c.; and I propose to characterize it by the term *Spinal Syncope.*"

In these cases, the pallor is attended with ghastly lividity, both probably, Dr. H. thinks, being the immediate effects of trachelismus on the vertebral veins, inducing *irregularity* of circulation in the medulla oblongata. Faintness, sickness, and vomiting, he adds, frequently ensue.

"The event may be compared with what is experienced by some persons from the movement of a carriage or a swing, and by almost all from that of a vessel on a rough sea. Irregular impulses of the blood on the medulla oblongata induce the effect of shock on the heart, and of irritation on the muscles of expiration combined in the act of vomiting. In the cases to which I have alluded, the cutaneous pores are frequently relaxed, and a cold perspiration bedews the patient's surface. There is frequently, in this case, as well as in that of suffusion of the countenance, loss of consciousness, and the fear of falling, or actual falling."

"Sickness is sometimes associated with headache, thus constituting 'sick-headache,' sometimes with giddiness. It is frequently an effect of the emotion of disgust; sometimes of a fall on the head; sometimes of an apoplectic seizure."

We must be indulged in one or two long quotations from the present work—as we can in no other way present to our readers a fair exposition of the views of Dr. H. in reference to the diseased conditions of which it treats. These views are advanced in so condensed a manner—almost in a series of aphorisms—that any attempt at analysis is out of the question—what we give must be in the author's own language. We believe that our readers would readily pardon even more extended quotations, in consequence of the importance of the subjects discussed, and the highly interesting pathological views advanced by Dr. Hall.

His explanation of those cases of apoplexy which are attended with softening of the brain is as follows:—

"In all cases of the apoplectoid or epileptoid seizure, whether hidden or observed, the cerebrum is congested, the intervening links being trachelismus and phlebismus. If the congestion be extreme, and greater in one hemisphere than the other, hemiplegic paralysis is observed. If the cerebral affection be limited

to *congestion*, and if this congestion disappear, the paralysis disappears too. It is paroxysmal and transitory. But if this congestion leads to ecchymosis, as we see in the face, this cannot subside; *softening* is the result; and with this, a greater or less degree of permanent hemiplegia. Or there may be effusion of serum into the ventricles, and its consequences, loss of memory, &c. If, with the paralysis, there be spasms—if it be *spasmo-paralysis*—the medulla oblongata is *irritated* by pressure or counter-pressure from the tumefied cerebrum."

In relation to the diagnosis between paroxysmal and other attacks of apoplexy, Dr. H. remarks:—

"Hitherto, I think, the distinction between the different attacks of apoplectic character has only been one of *degree*. But I believe there is an essential difference between the *threatenings* of apoplexy which occur and recede paroxysmally, and even the slightest inroads made by organic disease, whether of the arteries, or veins, or membranes, or the substance of the encephalon. Whilst the former are repeated, at first leaving little or no ill effect behind, the latter proceed insidiously, and at last there is perhaps a crushing attack of pain, of pallor, and of apoplexy, or of hemiplegia—a large laceration of the substance of the brain and extravasation of blood being discovered on making a *post-mortem* examination.

"It must be borne in mind, that a first attack may assume the form of paroxysmal apoplexy, the patient recovering speedily and entirely; and yet the second may be of the most deplorable character. In the former case, there are generally turgescence of the face and neck—the effect of trachelismus; in the latter, there is pallor—the effect of shock."

In speaking of the difference of treatment of paroxysmal nervous affections and similar diseases of organic origin, Dr. H. remarks that, while in a violent attack of apoplexy or palsy, the administration of an emetic would more than probably have the effect of causing greater congestion or greater effusion of blood, yet, if the case be one of paroxysmal apoplexy or paralysis, the nausea and sickness induced by a mild emetic would probably dissolve the spasm on the muscles of the neck, and so remove the pressure upon the veins by which the return of blood from the head is impeded, and consequently the congestion of the encephalon.

We quote from the preface of our author the following remarks on the treatment of apoplectoid seizures—

"No premonitory sign should be neglected, however apparently slight. A flush, a sense of constriction about the throat, a momentary vertigo, a momentary loss of feeling or of power about the lips or the fingers, should strike us with such terror as may, at least, awaken our utmost attention. The best physician is he who *watches* his patient most carefully. The wisest patient is he who submits—*for the rest of his life* it may be—to his physician's injunctions; asking not, 'how little may I do?' but, 'how much can I do?' in my perilous case.

"The regulation of the ingesta and of the egesta, of the occupations and emotions of the mind, of the exercises of the body, of the sleep, especially of the posture during sleep, of the circulation in the head and in the hands and feet—these, and many others are topics never more to be forgotten by the threatened patient.

"It is not mere *doses* of medicine, which may indeed ward off an attack for the moment, but mild, yet efficient, *courses* of medicine, to which we must trust.

"The *emotions* and the *irritations* are so frequently associated with undue secretion of gastric acid, that I cannot sufficiently recommend the due administration of antacids. With these, stomachic aperients, alterative mercurials, frequently gentle tonics, and especially, I think, the spinal tonic, strychnia, and every plan for the improvement of the general health—the shower-bath, change of air and scene, but especially travelling—must be combined. The physician and the patient should be prepared for the recurrence of the threatening, or of the actual seizure—and provided with the due and energetic means, and instant remedies proper for the emergency. In a word, the strictest regimen must be enjoined, with the view of prevention, and the promptest remedies, in the case of threatening or of seizure."

The foregoing relates to the proper management of those *threatened* with an

attack of apoplexy or paralysis. The following is the plan of treatment laid down by Dr. H. when an attack has actually occurred.

"In the decided paroxysmal seizure, our practice may be, and ought to be, energetic. We should promptly take away blood, and we should induce sickness and vomiting. If the attack be slight and repeated, an antacid aperient draught, properly repeated, may be all that is immediately required. If it be severer, an emetic with an antacid should be first given, and then an antacid aperient. If severer still, blood-letting, by cupping or by venesection, must be premised.

"In the midst of these measures, the head should be raised, a cold lotion applied to the crown of the head, sinapisms behind the ears, and to the nucha, and fomentations of the feet, and an enema should be administered. Afterwards, the tenth part of a grain of the chloride of mercury, two grains and a half of the pilula hydrargyri, and half a grain of squill and of ipecacuanha, should be given thrice a day.

"But, in organic apoplexy or paralysis, it may be a question whether we should take blood; but there can be no question in regard to the administration of emetics. The propriety of blood-letting and its measure must depend upon the state of the pulse and of the patient generally. The condition of the pulse must be ascertained as the blood flows. Sometimes its strength improves, and then we venture to proceed. On having taken what is deemed the due quantity of blood from the arm, we may prescribe cupping behind the ears or at the nucha.

"Emetics ought, I believe, and for the reasons already stated, to be avoided. The other remedies are those which have been already noticed as proper in the other form of apoplexy or paralysis. The cupping instrument applied to the nucha, making crossed incisions, but taking away very little blood, presents us with a very efficacious mode of counter-irritation."

The relation between apoplexy, paralysis, epilepsy, and mania is shown, according to Dr. H., by the patient affected with paroxysmal apoplexy sometimes becoming epileptic; by the attacks of the epileptic sometimes gradually assuming a more apoplectic character; by the fit of apoplexy being sometimes attended with convulsion, and by the usual termination of the fit of epilepsy in an apoplectic stupor, and this sometimes in mania.

"Both the apoplectic and the epileptic seizure are equally prone to issue in hemiplegic paralysis. This event is both more frequent and more apt to be permanent in the former case than in the latter; and, I believe, for this reason: the cerebrum is more congested in apoplexy than in epilepsy, though it *is* affected in both. Epilepsy is more apt to become complicated with spasmo-paralysis than apoplexy, for a similar reason: the medulla oblongata is more affected in the former disease than in the latter. The apoplectic, and especially the epileptic seizure is apt to pass into stupor or mania; and in the case of *hidden* seizure, it may be difficult to form an accurate judgment of the nature of these events."

"Every fact leads to the inevitable conclusion that the apoplectic, paralytic, epileptic, and maniacal affections are allied intimately together.

"The same remarks relate to puerperal cases: convulsion, apoplexy, paralysis, mania, are so linked together, that they may not only occur singly, but in various succession, before, during, or after parturition. The difference is, in reality, but the difference of vein principally compressed."

Dr. H. considers that form of apoplexy or paralysis which arises from emotion, or irritation, as primarily *inorganic;* and of course that form which arises from disease existing within the encephalon, and especially from rupture of the substance of the brain, as *organic.*

"The former of these is characterized by varied flushing of the countenance, and perhaps of the neck, and by various symptoms, such as headache, vertigo, loss of consciousness; loss of the power of speech, or of the hand; or more decided apoplexy or hemiplegia. Of this kind of attack there is every variety, every degree, every duration, from the most transitory to the permanent: every kind of recurrence and remission. It may be slight and transitory, and recur-

rent during many years. It may prove fatal, even in many of its attacks, early or late."

"Paroxysmal cerebral seizure is for the most part distinguished by the flushing of the countenance, the recurrent form of the seizures, the partial nature of them, &c. &c., whether they be apoplectic or paralytic, and the absence of *severe* pain of the head.

"The organic cerebral seizure is generally denoted by pallor of the countenance, faintness, sickness, sometimes with *severe pain of the head.* This kind of attack is generally severe, and the apoplexy and the paralysis are comparatively little under the control of remedies.

"In the paroxysmal seizure there is little of the appearance of *shock;* in the organic, the shock is frequently extreme, and traced in the condition of the countenance, the general surface, the pulse, &c."

Dr. H. remarks that the epileptoid or epileptic seizure is still more distinctly characterized by trachelismus than the apoplectoid or apoplectic. In some cases the whole attack consists in a fixed state of the head and eye, dilated pupil, and a deep flush; in others, there is unusual flushing of the face, with suffusion of the eye or eyelid, as the forerunner of the decided epileptic seizure.

"The first stage or first degree of both apoplexy and epilepsy," he remarks, "consists then in trachelismus—a spasmodic or spinal action, manifested in its effects on the venous circulation of the countenance and of the encephalon. The second stage or degree of these maladies is augmented cerebral affection in the former, of spinal affection in the latter; the difference consisting in the different forms assumed by the trachelismus, or of the muscles contracted, and of the veins compressed and obstructed. If these muscles are those which compress the jugular, the case is apoplexy; and if they are those which compress the vertebrals, and close the larynx, it is epilepsy! At least, I have not been able to resist the train of thought which has forced itself upon me, and which I lay before you with the utmost frankness, trusting to you to give it your most candid consideration.

"Both paroxysmal apoplexy and epilepsy are, then, first *spinal* or spasmodic, only in different degree and extent; both become *cerebral*, both leading to *coma* and, it may be, to *paralysis;* both terminating, occasionally, in *mania* or *amentia.*"

We quote the following remarks of Dr. H. on spasmo-paralysis and its diagnosis:—

"The *attack* of apoplexy or hemiplegia is sometimes complicated with convulsion or spasm; the attack of epilepsy or convulsion sometimes leaves paralysis. These two cases of spasmo-paralysis require to be accurately distinguished from those of pure spasm and pure paralysis. The former of these is, of course, spinal; the latter may be either purely cerebral or purely spinal. When the spasmo-paralysis is distinctly *hemipleyic*, I think it always involves both the cerebrum and the spinal centre.

"When hemiplegia is complicated with convulsion or spasm, either in the attack or afterwards, the cause of the hemiplegia—generally softening or rupture of the opposite hemisphere—is either complicated with such *tumefaction* as to affect the medulla oblongata by pressure or counter-pressure, or with arachnitis, with effusion at the base of the brain, affecting the medulla oblongata. In one deeply interesting case of this kind, the hemiplegia presented an exception to the general rule of augmented irritability in the paralytic limb. Whether this fact will be found in other cases of this kind, I do not yet know. But if it should, it will at once indicate a peculiarity in the pathology; for the paralysis must be more or less spinal, and suggest the diagnosis. This last question applies to the case of paralysis left by the convulsive or epileptic seizure. Is it *spinal?* Is it attended by diminished irritability of the muscular fibre?"

"The hemiplegia observed after the epileptic or convulsive seizure is sometimes entirely dissipated. In one case this event occurred after repeated seizures, the hemiplegia being rapidly evanescent in each. In another case, the hemiplegia, after severe epileptic or convulsive seizures, seemed, like those seizures themselves, of the most hopeless kind; yet it disappeared so entirely, that the patient, a seal engraver, has recovered the perfect use of his fingers, as of the

arm and leg. The questions are—whether there be mere irritations or organic change? whether there be mere intra-vascular, or extra-vascular derangement?

"These two forms of spasmo-paralysis are strictly connected with the subject of these lectures—paroxysmal seizures. But there are others which belong to a more extended view of the subject, to which I can, of course, only advert in a few words:—

"First, chronic hemiplegia is apt to become complicated with spasm, the effect of *tone*, the acts of volition being suspended. This is generally seen in the closed and rigid hand, and in the arms. Secondly, spasmo-paralysis is apt to supervene in chronic cases of paralysis agitans; and, in this case, strange to say, I think it is the effect of a sustained act of volition, of which the patient is unconscious. It ceases, on certain occasions, when the attention is drawn to another object."

We must pass over the highly interesting remarks of Dr. H. on the subject of "hidden seizures"—a subject certainly of very great importance, as well in a medical as in a lego-medical point of view. It would, however, extend this article to too great a length to present our readers with a fair exposition of the author's views in respect to it. We shall conclude our notice of Dr. H.'s work by an extract from his section on "Paroxysmal Mania."

"I have known a maniacal paroxysm to follow an epileptic attack. I have just described a case in which a violent maniacal paroxysm followed what afterwards appeared to have been a *hidden seizure*. I have had occasion to watch a case in which a paroxysm of mania came on at uncertain intervals, after a prolonged and perfect 'lucid interval,' and was superseded by the well-timed administration of emetics. May we not infer from these facts that mania is frequently a paroxysmal disease, holding the place, in regard to other cases of mania, which paroxysmal apoplexy does to organic apoplexy? and does not this view suggest the propriety of the repeated administration of emetics in such cases of mania?

"The paroxysm may be excited, like that of paroxysmal apoplexy and inorganic epilepsy, by emotion or gastric irritation. Some source of exasperation may have occurred, or some improper article or quantity of food may have been taken, or gradual load of the stomach or bowels may have taken place—may have proved the source of trachelismus, and this of a hidden seizure, and this in its turn of mania. The mind must be kept tranquil, the diet must be of the most digestible kind, and the bowels must be kept well moved daily; in addition to which, an emetic should be given at stated intervals, or on the occurrence of any symptoms threatening an attack.

"Some cases of mania assume decidedly the paroxysmal form, subsiding entirely in their 'lucid intervals;' others continue without absolute intermission, but experience paroxysmal exacerbations. In some cases these paroxysms have been distinctly traced to intemperance in diet. In the case to which I have alluded, the attack, which had usually returned after the space of four or six weeks, has been warded off by weekly emetics for sixteen weeks! These emetics consisted of two grains of the tartrate of antimony, mingled with the patient's tea, unknown to him, when he had been observed to commit an error in his diet.

"It will be remembered that mania is apt to follow an apoplectic, paralytic, epileptic, or convulsive affection; and I need scarcely again advert to the case of hidden seizure just detailed. Mania forms one of the *class* of paroxysmal, cerebral, and spinal diseases. It may arise from mere vascular distension, the effect of such a seizure.

"In paroxysmal mania, as in paroxysmal epilepsy, I am persuaded that there is the same pathology in trachelismus, and the same hope of successful treatment from emetics, or from emetics, antacid aperients, and mild alterative mercurials combined. I am persuaded, too, that this form of mania, at least, admits of remedy more frequently than is supposed; and we have still to discover the rationale of other forms of insanity.

"These cursory remarks must be viewed as merely suggestive. The subject must be carefully investigated. But I have long meditated the institution of an asylum appropriated to cases of short duration, the stay of which within its walls should be duly limited. Each of these limited periods might be *one year*."

We here close our notice of the work of Dr. Hall. From the extracts we have given, our readers will be able to form a judgment of the views advanced by the author in reference to the immediate cause of what he terms the paroxysmal form of apoplexy, paralysis, epilepsy, and spinal syncope; the indications of a threatened attack of these diseases, with the means of prevention, deduced by him from their pathology in what he has denominated trachelismus and phlebismus. Of the accuracy of the pathological and therapeutical views of Dr. H., we do not feel ourselves competent to give a correct judgment until we shall have had an opportunity of testing them by a series of clinical observations. Many of the facts referred to by him in defence of those views, we are familiar with, and have little doubt that the leading doctrines advocated in the volume before us will be found to be based in truth. The work of Dr. H. is deserving of an attentive study on the part of every practitioner, who will, no doubt, look with pleasure to the speedy appearance of the promised systematic exposition of what is here treated only *in limine*. D. F. C.

Art. XV.—*Essays and Notes on the Physiology and Diseases of Women, and on Practical Midwifery.* By John Roberton, formerly Senior Surgeon in Ordinary to the Manchester and Salford Lying-in Hospital and Dispensary for the Diseases of Women and Children. London, 1351: 8vo. pp. 530.

The essays and notes of which this volume consists are the fruit of the author's inquiries and experience during eleven years' connection with the Lying-in Hospital and Dispensary for the Diseases of Women and Children at Manchester, as well as subsequently to his retirement from that institution. The subjects of which they treat are such as deeply to interest every medical man; while the general deductions and practical inferences of the author are throughout replete with instruction.

Mr. Roberton is evidently a close and industrious observer—little inclined to adopt opinions upon the mere score of authority, or to shrink from the task of testing the truth of generally received doctrines in consequence of the labour required to collect and compare the requisite facts.

The initial essay, on the period of female puberty in different climates, in which the author has very successfully refuted more than one error in the opinions almost universally entertained by physiologists on this important point, presents a very fair specimen of his industry in the accumulation of accurate information from every available source calculated to elucidate the subject of investigation.

In this essay Mr. Roberton presents a number of interesting facts in relation to the present social condition of woman in countries where the Christian religion has not yet elevated her to her proper rank and position in domestic life and in society generally, and a large and valuable mass of information bearing more directly upon its immediate object—the determination of the influence of climate upon the age of puberty.

A mere analysis of the essay, or even repeated and extended quotations from its different sections, would not present a fair exposition of the amount and value of the evidence adduced in support of the author's general conclusion, that difference of climate alone occasions very little, if any, important diversity as to the periods of life and the physical changes to which the human constitution is subject; and that, in all these particulars, mankind, in each of the races and under every climate, is placed by nature on an equal footing.

It has been almost universally believed, since the time of Haller, that in the females of cold climates the period of puberty occurs late in life, while in those of tropical regions it occurs very early; girls being marriageable and actually becoming mothers in Hindostan at an age when they are still in their childhood in England and more northern regions. This Mr. Roberton has shown not to be the case. He presents three tables, the first presenting a comparative view of the

age of female puberty in 597 natives of Hindostan and 2,169 natives of England: the second, the comparative ages at the birth of their first child in an equal number, 265, females of the two countries; and the third, the comparative ages at the cessation of the catamenia in 57 Hindostan and in 69 English females.

"The inferences I would draw," Mr. R. remarks, "from this tabular view of the ages for the commencement and the cessation of the catamenia, and for the birth of a first child, are as follows:—

"1. The opinions of Haller, and all the physiologists since his time, that female puberty, in the warm regions of Asia, occurs from the eighth to the tenth year, is not only erroneous but wide of the truth.

"2. The age for the earliest commencement of menstruation, either in India or England, may be taken at *nine* years. The suspicious case at *eight*, in the Calcutta column, might, however, be paralleled in this country—an instance of the kind having come under my own notice.

"3. That, hence, although the *average* age of puberty in India is earlier than it is in this country, we may doubt if puberty does actually appear at an earlier period of life in the one country than in the other.

"4. For, bearing in mind, that a proportion of the cases of menstruation under the age of *eleven*, in Calcutta, amounting to 10.04, is to be received with suspicion; perhaps quite as large a proportion menstruate under the age of *eleven* in England as in India. Thus, if we take the tables for Bengal and the Deckan together, the per centage under eleven is four; for the latter by itself, *i. e.* Bangalore, Toomkoor, and Bombay, it is 1.39 only; while, in England, the per centage is 3.15.

"5. The remarkable difference between the establishment of puberty in Europe and India consists in the far greater proportion of Hindoos who arrive at puberty at the ages of twelve, thirteen, and fourteen.

"To put this fact in a clear light, I have to remark that, in England, and the other European countries where the period of puberty has been ascertained and tabled, it has not been found that so large a proportion of instances cluster at any particular year of age. On the contrary, the occurrence of the sign of puberty is distributed more equally over a number of years—the twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth—thus preserving, if one may say so, the graceful variety of nature.

"6. Although it is manifest from the tables, that Hindoo women reach the age of puberty nearly two years earlier, on the average, than happens in Europe, it does not follow that the climate is the cause. Demerara and the West India Islands have a higher mean annual temperature than Calcutta and the Deckan, and yet we know that the negress in these colonies is not earlier than the peasant women of England.

"The difference that exists between the European and the Hindoo must be sought *in race*. When it is recollected that the consummation of marriage among the Hindoos has taken place, at the latest, on the arrival of puberty, during the lapse of more than 3,000 years, and that the practice is sanctioned by ancient laws, and consecrated by custom, it is easy to conceive that those females who were the latest in reaching puberty would be the least sought after for wives; that such women would not unlikely, in many instances, remain unmarried; and that thus (owing to the origination of a preference on this ground in the selection of wives, operating through a long period of time) Hindoo women would gradually come to consist, in a proportion different from that in Europe or elsewhere, of such as by constitution are early nubile. To me there seems nothing extravagant or far fetched in this supposition. The production of a like state of things in England, in any particular district, is quite conceivable. Nothing is better established than that early puberty is a family peculiarity. Let us, then, only suppose families, possessing this kind of constitution, to intermarry, and the peculiarity in question would be propagated, extended, and transmitted, and so a race distinguished by it would be produced.

"Dr. Goodeve, in his reply to queries, states that he has known menstruation in the Hindoo continue till the age of fifty. In the table for Toomkoor, the mean age is forty-five years nearly. There are also thirteen instances, headed 'menstruation late in life,' in the Baboo's table. Six of these were persons still

menstruating, one 50, and one at each of the following ages: 56, 63, 64, 67, and 68; likewise, seven that had ceased, at the following ages: 56, 57, 58, 59, 60, 65, and 80 years—instances, of course, as late could be paralleled in any country. No great weight, however, is to be attached to exceptional cases. If we may judge from the Toomkoor table, the mean age at the cessation of the catamenia is full two years earlier than it is here.

"The age for a first birth is considerably later in the Deckan than it is in Calcutta. At Bombay, the mean age is little short of seventeen years; in Bangalore, sixteen years and five months; while in Calcutta, the mean is fourteen years and eight months. But, taking the mean age for India, which is fifteen years six and a half months, we still have a social phenomenon of a very surprising kind, when compared with the age for the same event in Europe. From a register of the time of life at a first parturition in five hundred women of Manchester, chiefly of the class of manufacturing labourers, I find the mean age to be twenty-three years, whereas the mean age for a first birth in Hindostan is earlier by nearly eight years! Moreover, in the English register there is no instance of parturition under the age of seventeen, while in the Hindoo table, one-half occurs where the mother is under sixteen, and not one in ten is of the age of twenty and upwards.

"A fact, hitherto, I apprehend, unknown to Europeans, is the law of the Shastras, that females should be given in marriage *before* the occurrence of menstruation; and that, should consummation not take place until after this event, the marriage is a sin. Accordingly, it is the custom, in Lower Bengal, to send the girl at the age of nine years to the house of her husband, unless the latter be so distant that it cannot be done: and two ancient Hindoo sages are of opinion that if the marriage is not consummated before the first appearance of the catamenia, the girl becomes 'degraded in rank.' Testimony to the same effect is given by Professor Webb, who likewise joins the Baboo in thinking that, in those alleged instances of very early menstruation, a discharge of blood from injury in premature intercourse is the real explanation of the occurrence; a supposition worthy of consideration, when endeavouring correctly to estimate the value of the Calcutta tables. At Bangalore, it would seem that this revolting custom of consummating the marriage before puberty does not obtain, the husband refraining from taking his wife to his own house till not less than sixteen days have elapsed subsequently to puberty. Customs, we know, differ in different parts of our great Eastern Empire. I had occasion formerly to refer to the diversity of manners, and even morals, in so vast a country. In the present instance it might readily escape notice, when speaking of Calcutta and Bangalore, that these two cities are about as widely apart as to distance, and probably not less diverse in customs and manners, than are Copenhagen and Madrid, the capitals of Denmark and Spain.

"Viewing, as we must do, with pity and disgust, the infantile marriages of Hindostan, it is some consolation to learn from Professor Webb that the more intelligent Hindoos of the present day hesitate not to pronounce these early unions as the monster evils of their country."

Mr. Roberton regards the prevalence of these early marriages among the Hindoos as the principal circumstance which has led Europeans into error, in regard to the period of puberty in southern climates: a trait of manners, as he maintains, to be attributed not to precocity, but to moral and political degradation, and impure or debasing systems of religion. In proof of this position, Mr. R. has adduced evidence to show that, in England, at a period when some of the unfavourable circumstances just referred to still lingered amongst her inhabitants, early marriages were very common; if not in all ranks, certainly among the gentry; and that such marriages were likewise common, very recently, among both high and low, in the south of Europe, in Russia, and in Ireland; "countries where the mass of the people, from moral or political causes, and commonly both, are sunk in ignorance, or, at best, with slow and doubtful progress, emerging from it."

We learn from the facts adduced by our author in reference to the age of puberty in the female, first, that physiologists, by drawing their conclusions from a few imperfectly observed data, have fallen into error in limiting the time

for the appearing of the *catamenia* to the thirteenth, fourteenth, or fifteenth year, when, in fact, it has a range of nine or ten years, instead of three; secondly, that, whatever influence certain moral and physical causes may have in retarding or accelerating the period of puberty in individual cases, the time at which the catamenia make their first appearance is not dependent upon climate: and, finally, that they continue regularly to appear to as late a period in life in southern and tropical, as in northern and arctic regions.

The next subject treated of is *the Periodical Recurrence of the Menses.* While, in the great majority of instances, the catamenia recur monthly—that is, from the cessation of the discharge at one period to its disappearance at the next—there elapses a period of twenty-eight days; in other words, the interval of about twenty-three or twenty-four days, and the duration of the flow of about four or five days taken together, fulfil a term of four weeks: Mr. Roberton has attempted to show, however, that there is a certain portion of females in whom the term is only three weeks; another, smaller, proportion in whom the term—apparently in no degree from the effect of disease—is irregular, being in the same woman, at one time three, at another time four, or six, or eight, or even twelve weeks. And another, but much smaller proportion, in whom the catamenia recur regularly every fortnight, the interval being nine or ten days, and the flow continuing four or five days.

"In all these varieties, I may remark, the secretion continues from about two to six days in general, in some three or four days longer, varying, in different women, according to natural difference of constitution; and varying, even in the same person, both in duration and quantity, from causes in no way affecting the health. Indeed, I am convinced that the catamenia in, perhaps, the majority of women, deviate not unfrequently from exact periods, and vary, both with reference to the quantity secreted, and the continuance of the flux, without there being the slightest symptoms of disease, either assignable as the cause, or appearing as the consequence, of such irregularity."

The following is the result of inquiries made in one hundred instances. The majority of the females were patients of the Lying-in Hospital, yet a considerable number belonged to a different rank in society. Mr. Roberton remarks that, although he regards the data as perfectly satisfactory, he leaves it to the reader to estimate them at what he may consider to be their proper value.

"Of one hundred women there were sixty-one in whom the catamenia recurred monthly; twenty-eight in whom they recurred after an interval of three weeks; ten in whom they recurred after intervals of varying and uncertain duration; and one, a healthy woman of twenty-three years of age, in whom they recurred regularly every fortnight. In these one hundred instances, which were taken consecutively without selection, only one occurs in which the catamenia returned every fortnight. Such cases, however, are far from uncommon, as I am at this moment acquainted with many; and, what is remarkable, this variety of menstruation generally exists as a family peculiarity. I happen to be acquainted with two families in which this is the case; and in one of these families this peculiarity extends into collateral branches. Through the kindness of several professional friends, I have received information of other instances precisely similar."

Our attention has for a series of years been directed to the collection of facts in reference to the periods of menstruation. The general deductions we had drawn from 784 cases, in which the exact intervals which occurred between the cessation of one menstrual period and the commencement of the next, were ascertained, as we believe, with certainty, correspond with those of our author. In the great majority of instances, that is, seventy-one per cent., the interval between the termination of the discharge and its recurrence was twenty-eight days—never deviating from this term, and that only in a very few instances, beyond a single day, or, at farthest, two days; sometimes anticipating, and at others delaying, in the same female, its ordinary period of recurrence, from twenty-four to forty-eight hours. In about eighteen per cent. of the cases, the catamenia recurred at intervals very nearly of fourteen days. In many of these cases, the flow on each alternate period was much more copious, and continued for a day or two longer than at the intermediate periods. The females were all in the

enjoyment of apparently perfect health, and were of very different classes of society. Some of these cases were brought to our notice by the women in whom they occurred applying for our advice, fearing that the frequent recurrence of the discharge was the result of disease, or was calculated to weaken them. Upon the most minute investigation, we were persuaded that their anxiety in either respect was unfounded. In rather more than five per cent. of the 784 cases we have collected, the catamenia returned every three weeks; and in about six per cent., at very irregular and uncertain periods, varying from two to eight or ten weeks in the same individual. These latter cases occurred, generally, in females of relaxed and excitable constitutions—in several, the females were affected with dyspepsia, hysteria, or leucorrhœa.

The next subject noticed by our author is *the Age at which Menstruation ceases.*

"The circumstances," he remarks, "which attend the final cessation of the menstrua, bear some analogy to those which attend their commencement, chiefly in respect to the different ages at which they cease in different persons; and also, in their frequent irregularity both with reference to periods, and to the quantity secreted, during several of the later years of the menstrual epoch.

"I have already observed, that it is an admitted physiological principle, that child-bearing, begun at an early age, at sixteen or eighteen, for example, rarely goes on throughout the whole of what is usually regarded as its natural period. The earlier or later termination of child-bearing, therefore, in any country, will depend on the average age of marriage there. In our own country, I am led to believe, from facts which have been collected, that the average age of marriage for women is about twenty-five years."

The following table, drawn up from the registers of the Manchester Lying-in Hospital, shows, from 10,000 instances of pregnancy at all ages, the *proportion* who conceive when above the age of forty.

"Of 10,000 pregnant women, 436, or 43⅔ per 1000, were upwards of forty years of age. Of these 436 women:

101	or $10\frac{1}{10}$	per 1000	were	in their	41st year.
113	" $11\frac{3}{10}$	"	"	"	42d "
70	" 7	"	"	"	43d "
58	" $5\frac{4}{5}$	"	"	"	44th "
43	" $4\frac{3}{10}$	"	"	"	45th "
12	" $1\frac{1}{5}$	"	"	"	46th "
13	" $1\frac{3}{10}$	"	"	"	47th "
8	" $\frac{4}{5}$	"	"	"	48th "
6	" $\frac{3}{5}$	"	"	"	49th "
9	" $\frac{9}{10}$	"	"	"	50th "
1	" $\frac{1}{10}$	"	"	"	52d "
1	" $\frac{1}{10}$	"	"	"	53d "
1	" $\frac{1}{10}$	"	"	"	54th "

"Here it will be observed by the reader that the number of pregnancies suddenly and greatly diminishes after the age of forty-five. From the age of forty-six to fifty, both inclusive, the numbers are nearly equal for each year, indicating, I am disposed to think, that those who conceive above forty-five, *e. g.*, at forty-six or forty-seven, probably possess a peculiar constitution fitted for childbearing, even to the age of fifty. Above the latter age, the proportion dwindles down to one instance of pregnancy in 3333.

"An examination of the table naturally suggests to the mind two questions: first, have women bearing children above the age of forty-five, generally been married late in life? And second, do the catamenia in such instances always continue as long as the generative faculty? To the first question, I can give only an imperfect, but perhaps, a sufficient answer: of eleven women, three of whom had a child each in her forty-ninth year, and the other eight who had each a child above that age, I ascertained that the average number of their children was one hundred and fourteen, *i. e.*, ten and a fraction for each women; a fact indicating that they must have married rather early in life. Concerning the age of marriage in two out of the eleven, I possess some little information; the one married at eighteen, had two children before she was twenty-one, and

brought forth her fourteenth child in her fiftieth year: the other was married from a boarding-school at a very early age; in her fifty-third year she was delivered of her twelfth child.

"In regard to the second question, as to whether the menstrua always continue as late as the power of conception, all the facts which have come under my observation favour a reply in the affirmative. I am able to speak confidently concerning three women who had children at advanced ages, one in her fiftieth year, another in her fifty-first year, and the third in her fifty-third year. In each of these instances the menstrua continued up to the period of conception.

"These facts do not, of course, show the ages at which menstruation finally ceases. The following table, drawn up in 1832, chiefly by the kind assistance of my friend J. G. Harrison, Esq., the House Surgeon to the Manchester Workhouse, shows this, as far at least as the number of the facts may be supposed to warrant a general conclusion. I may state that, since the period referred to, I have made a number of inquiries, and am persuaded that the largest collection of instances would not furnish results materially different. In seventy-seven women the catamenia finally ceased at the following ages:—

In 1	at the age of	35	years.	In 26	at the age of	50	years.
4	"	40	"	2	"	51	"
1	"	42	"	7	"	52	"
1	"	43	"	2	"	53	"
3	"	44	"	2	"	54	"
4	"	45	"	1	"	57	"
3	"	47	"	2	"	60	"
10	"	48	"	1	"	70	"
7	"	49	"				

The last woman referred to in the above table ceased menstruating for twelve months about her fiftieth year. Again she became regular, and so continued till the age of seventy.

The next subject discussed in the volume before us is *the Law which determines the Intervals of Conception in the Human Female.* Mr. R. puts the question: Since the duration of human pregnancy is only nine months, the same as in the cow and deer, how does it happen that women do not conceive and bring forth annually as well as they? He is convinced that there must be some law in operation to prevent this, since it is an ascertained fact, that the ordinary interval between successive births, in the same mother, when the children live to be suckled, is from twenty-one to twenty-four months. This interval, be it a little more or less, coupled with the fact of human pregnancy continuing only nine months, shows that the fecundity of women is, by some means, restrained, or rather regulated, with something of the same general certainty that happens in brutes from instinct.

After pointing out the fact that the longer period during which the human offspring, from the slow development of its organization, is necessarily dependent for nourishment and protection upon the mother, requires that a greater length of time should intervene between successive births in women than in brute females, our author proceeds to show that the cause which regulates the intervals of conception in the human female is a physiological law, by which, so long as the secretion of milk continues in the breast, the uterine organs are placed in a condition unfit for conception. Certain questions were put, as convenience offered, to 160 of the more intelligent of those married women who resort, in a state of pregnancy, to the Board of the Hospital, for the purpose of being registered as home patients. As Mr. R. was careful to make the inquiries himself in every instance, he had no doubt whatever of the general accuracy of the results. This was in 1831. Some years subsequently, Dr. Laycock published inquiries made of 135 married females.

"Respecting the 160 Manchester women, it may be stated that the average age was $30\frac{1}{2}$ years; their aggregate number of births 686, or $4\frac{1}{4}$ for each woman; the number of children which lived to be weaned, 512, or $3\frac{1}{5}$ for each mother; and the mean age at which they weaned their children, $15\frac{1}{2}$ months. Of these women, 81 had become pregnant once or oftener during lactation, and the remaining 29 had never conceived under the same circumstances.

"Of the 81 women that had become pregnant during suckling, 27, who had produced 101 children, had conceived only 38 times during lactation; 42 who had always become pregnant while suckling, did not, on the average, conceive till they had suckled for 19½ months nearly; and 22 (the remainder of the 81 women) had been in the habit of conceiving during lactation, and soon after parturition.

"The average age for weaning their children was different in the two classes of women; in those, namely, who had not conceived during suckling, and those who conceived once or oftener while so engaged. For the 79 women comprising the former class, it was 14¼ months; and for the 81 women of the latter class, it was 15⅔ months.

"It further appeared, as a general fact, that in healthy women, when the child was still-born, or when it died soon after birth, another birth took place within the ensuing twelve months; and that also, speaking generally, women under forty years of age, and in health, conceived in from one to three months after weaning, whether that event happened at an early or at a comparatively late period after parturition."

Of the 160 women above referred to, 99 had never menstruated during suckling. Of the remaining 61, seven, who had suckled altogether 16 children, menstruated each only in one instance of lactation. One was in the habit of menstruating after suckling four months; 4 after six months; 2 after seven months; 2 after eight months; 2 after nine months; 2 after ten months; 1 after eleven months; 7 after twelve months: and 2 after fourteen months. Thirty-one menstruated regularly during lactation. Of those women who had usually conceived while nursing, the majority did not menstruate.

Dr. Laycock's inquiries were made of 135 married females, with the following results: 209 pregnancies took place during 766 lactations, or at the rate of 1 in 3.66, or about 27 per cent.

"The 209 pregnancies occurred in 76 females as follows:—

Number of Females.	Number of Children.	Number of times pregnant during Lactation.	Average.
30	163	30	1 in 5.4
12	65	24	1 in 2.6
10	78	30	1 in 2.6
13	93	52	1 in 1.8
3	25	15	1 in 1.6
4	29	24	1 in 1.2
2	14	14	1 in 1.0
2	25	20	1 in 1.2
76	492	209	1 in 2.34

"The average duration of lactation in the 135 females was 13 months nearly; of the 76 it was 14.4 months. It will be seen that, in 30 of the 76 who became pregnant during lactation, pregnancy so occurred only once in each: so that, for practical purposes, these might be deducted. This reduces the number of females who conceived while suckling to 46, or 33.9 per cent., being nearly 1 in 3."

"From the inquiries I have made," Dr. Laycock remarks, "it appeared very evident that there were two classes of females. In the one, the pregnancy during lactation was the rule; in the other, the exception. Of the former class, there appear 19 only in the 135, or 1 in 7. These 19 females averaged 5 children each; 9 of these had 46 children, and always became pregnant during lactation; 10 had 48 children, and each of the 10 escaped becoming pregnant once only during lactation. The period of lactation, at which pregnancy took place, varied from three months to two years. The average in 106 instances was 12½ months. The average age of 135 females at the time of marriage was 22 years; the average number of children weaned, 5.7."

From the foregoing inquiries, Mr. R. draws the following corollaries:—

"*First.* That in seven out of eight women who suckle for as long a period as the working classes in this country are in the habit of doing, there will elapse

an interval of from twelve to fifteen months from parturition to the commencement of the subsequent pregnancy.

"*Second.* That, in a majority of instances, when suckling is prolonged to even nineteen or twenty months, pregnancy does not take place until after weaning.

"*Third.* That lactation having this influence on the generative function, we are warranted in regarding the secretion of milk as the *cause* which regulates the periods of conception in mankind, as instinct operates to the same end in graminivorous quadrupeds, and probably in all other animals."

The *Hysteric Constitution* is the subject of the next essay. The remarks of Mr. R. in relation to this subject are replete with interest. He draws a very marked distinction between "nervous disorders," so called, and hysteria. These disorders are rather the effects of chronic derangements of the digestive organs in connection with exhaustion, from over-use, of the organ of the mind—the brain; they are but signs of the wasted condition of the system—of a system, in many cases, more or less a wreck. The hysteric affection, on the other hand, although very often called into activity, and aggravated by the same causes as the former, requires, according to our author, in the subject of it, a diathesis *sui generis*, which he would denominate the hysteric constitution, without which it will not exist.

Mr. R. presents the delineation of the peculiar traits by which the hysterical constitution is distinguished, as drawn by the free, bold, and vigorous hand of Burton, in his "Anatomy of Melancholy." This is too long to copy. Even were it shorter, it would be unnecessary to present it to our readers, as most of them must, or at least should, be familiar with it.

Instead of attempting a definition of hysteria, Mr. R. has preferred "the easier task," as he denominates it, of detailing a case, in order to illustrate its character in one of its most ordinary forms.

"A healthy girl suffers some unlooked-for grief or disappointment; soon after, it is noticed that she is pensive and languid, and that her complexion has undergone a change, being no longer natural, but sallow. Her bowels *work*, which means that they are filling with air, and are agitated with spasmodic contractions. She seems to be repressing a violent disposition to weep; suddenly she falls back in her chair, slightly convulsed, particularly in the arms and lower extremities; a handful of cold water is thrown in her face, she opens her eyes, gives a stupefied stare, and relapses into her convulsions again. She is put to bed, where she has repeated returns of the convulsive motion, with intervals of consciousness, during which she presses her hand on her stomach, eructates with a loud noise, and struggles to eructate more. The convulsions now subside into a kind of stupor; the stupor, by degrees, into natural sleep, and the girl, in a few hours, is quite well, saving only an unusual languor, and that she voids, once or oftener, a large quantity of limpid urine."

This Mr. R. presents as a mild instance of spasmodic hysteria, with the remark, however, that the disease assumes a greater number of forms almost than we have terms to designate them by. The following forms and varieties, with two or three exceptions, he has himself repeatedly witnessed in practice.

"Two or more of these, he adds, are sometimes so blended together, and the more noteable symptoms of the present hour so unexpectedly give place to fresh trains, as to constitute the most perplexing series of morbid phenomena imaginable, which the patient and experienced observer alone can unravel and refer to their true cause.

"1. Spasmodic Hysteria.—Besides the regular hysteric paroxysm of which the case above described is an instance, this form of the disease is exhibited in the following varieties, in each of which some one symptom is chief and predominant:—

"*Hysteric cough.*—Dry, perpetually barking; with or without difficulty of breathing.

"*Hysteric hiccup.*—Sometimes violent, beyond the common singultus.

"*Hysteric exclamation.*—Sighing, agitation, with the utterance of some such exclamation, at regular intervals, as heigh-ho! heigh-ho!

"*Hysteric sighing.*—Recurs in paroxysms after irregular intervals, consisting in convulsive inspirations, loud, exhausting, distressing to hear.

"*Hysteric dyspnœa.*—May continue for several days, and with a severity which, if originating in any other cause, would destroy life.

"*Hysteric dysphagia.*—Proceeding, apparently, from dread of suffocation in the act of swallowing.

"*Hysteric lock-jaw.*—Stiff neck; motion of jaw impaired or suspended; other local hysteric affections, as a pain in one of the breasts, or between the shoulders.

"*Hysteric rigidity of other muscles.*—Such affections have been known to recur monthly; contraction of the muscles of one-half of the face, or of the muscles of one hand, or of the flexors of one of the larger joints.

"*Hysteric palpitation.*—A degree of palpitation is usual in various forms of hysteria; but in certain instances it constitutes the prominent symptom, every pulsation violently shaking the whole frame and producing the appearance of alarming exhaustion.

"2. Hysteric Palsy.—Generally commencing or combined with spasmodic symptoms, which lead to the detection of its real nature.

"*Hysteric paraplegia.*—(Palsy of one symmetrical half of the body), attended generally with palpitations, flutterings, partial headache, and the like.

"There are various minor varieties of this form.

"3. Hysteric Disturbance of Mind.—Often variable and fugitive, but sometimes chronic.

"*Hysteric delirium.*—Commencing with obvious signs of hysteria; of uncertain duration, from a few hours to many days; ought to be discriminated from true mania, in which hysteric symptoms rarely occur, even in those who have previously been liable to the disease.

"Other varieties of this exist, as obstinate valetudinarianism and despondency, combined with hysteric symptoms.

"4. Hysteric Sopor.—Apparent insensibility to external objects, inaudible respiration; resembles death. The patient may be roused by completely closing the lips and nostrils.

"5. Hysteric Pains often imitate inflammation of an important organ or texture; generally other hysteric symptoms present; also leucorrhœa, or derangement of the menstrual function. Some great incongruity in the symptoms leads to the detection of the real nature of the affection, more particularly absence of that peculiar depression of countenance which characterizes inflammation of an important organ.

"*Hysteria imitating pleurisy.*—Pain most acute, generally under the left breast, increased on pressure; respiration panting; pulse rapid, variable.

"*Hysteria imitating hepatitis.*—Pain and acute tenderness on the right side; attack sudden; pulse may be quick, but is not hard.

"*Hysteria imitating peritonitis.*—Seizure not gradual, but sudden; tenderness most acute, particularly on a light degree of pressure.

Hysteria imitating hysteritis.—Pain in the uterine region extreme; greatly increased on light pressure; patient more restless and active than in true hysteritis.

"*Hysteria imitating pericranitis.*—Excruciating pain of scalp, with extreme tenderness; vomiting; intolerance of light; pain variable, and frequently confined to one spot.

"*Hysteria imitating arthritis.*—Wrist may be the seat; commences with slight swelling and great pain which may continue long; the wrist becomes drawn and rigid, the hand wasted, the surface exquisitely tender. If in the knee, it is semi-flexed, and there is slight tumidity, acute pain, exquisite sensibility; generally the joint may be moved in sleep, without producing evidence of painful sensation.

"6. Hysteria that is Voluntary.—A power possessed, in rare instances, of bringing on at will a paroxysm of spasmodic hysteria.

"7. Hysteria in the Male.—Chiefly of an irregular kind, as flatulent suffocation, palpitation, mental excitement, with *globus*, and limpid urine, &c., seldom reaching to convulsive action of the voluntary muscles, *i. e.*, to a regular fit."

According to Mr. R., the essential feature of the constitution liable to hysteria is a peculiar irritability of the nervous system, existing throughout the duration of life, and often manifesting itself in a degree greater than the power to resist

particular hurtful impressions. In consequence of the excessive excitability of the nervous system, various causes, mental as well as physical, produce certain morbid effects, already characterized and partially enumerated—effects which, in the aggregate, have received the name of hysteria. The inordinate and peculiar nervous excitability alluded to, Dr. R. is inclined to believe originates, in all cases, in congenital defect in the nervous structure, although it may afterwards be aggravated by a variety of circumstances, the chief of which are derangement of the menstrual function; an idle, sedentary, luxurious manner of living; and the cultivation of the emotions and passions to the neglect of the understanding. Dr. R. believes it probable that in those in whom the hysteric constitution manifests itself, there is also some congenital defect in other systems of organs than the nervous, more especially the digestive and assimilative organs; for although, he remarks, in many instances the hysteric patient is robust and vigorous, much more generally she is of slender delicate make, capricious appetite, feeble digestion, and exceedingly variable bowels.

From the general summary of the views of Dr. R. in relation to hysteria, with which the essay concludes, we quote the following:—

"It is an error to regard hysteria as exclusively a symptom of uterine derangement, or of spinal derangement, or an affection of the brain, or as being solely a disease of females.

"The peculiar nature of the causes, as well as the symptoms of hysteria, in all its forms and varieties, points to the nervous system as the primary seat of the disease; and it would appear, further, that not always the whole of that system is affected, but rather, sometimes, a particular part thereof; an inference illustrated and strengthened by sound analogy."

"The mind exercises a remarkable power over the phenomena of hysteria; in rare instances causing paroxysms of the spasmodic form of the disease, by a mere act of the volition, and in other cases sufficing to effect, or powerfully to aid in effecting a cure; facts which seem to prove, that hysteria is as purely and unequivocally an affection of the nervous substance as perhaps any disease which could be named."

The first obstetrical essay in the present work is on the *Bony Pelvis, considered obstetrically*, intended to show that the pelvic passage in the human female is as well adapted, when unaffected by disease or accident, to the easy and safe passage of the fœtus as is the pelvic passage in the females of the lower classes of animals, and that, in reference to the mechanism of parturition, woman is exposed to no more difficulty, naturally, than the brute creation.

The next essay is entitled, *How to use the Midwifery Forceps with safety to the Mother and Child.* It contains some judicious observations on the proper mode of applying and acting with the forceps under the several circumstances of labour in which a resort to them is rendered necessary. The author also suggests a modification in the form and dimensions of the forceps, in order to adapt it more readily to seize the head of the child, and to lock in every position and situation of the head requiring this kind of assistance. The forceps described do not strike us as superior in any respects, however, to those in common use in this city.

The following essay is on the *Risk of Laceration of the Uterus in Labours complicated with Deformity or Narrowness of the Inlet of the Pelvis.* On this subject the remarks of the author are replete with interest and instruction.

From a series of cases, ten in number, of ruptured uterus, which fell under his own observation, and twenty-seven cases collected from English works of credit, the author draws this general conclusion: that when rupture of the uterus does happen from contracted inlet, the interval from the earliest signs of labour to the occurrence of the accident is seldom great.

In the major proportion of the thirty cases, namely, in twenty-two, the period of labour at which the accident occurred was thirteen hours and under, from the occurrence of the earliest signs of commencing parturition; in ten cases, only, did the rupture occur beyond the seventeenth hour of labour.

From the result of thirty cases in which the number of the labours is given, it is inferred that laceration rarely occurs in a first labour, and oftenest, perhaps, in a second, third, fourth, and fifth. At all events, it would seem, Mr. R. re-

marks, that those who are fruitful mothers, as shown by a high number of births, are comparatively less exposed to this fearful accident than those earliest in the career, or lower in the scale of fecundity.

In every instance of laceration of the uterus that Mr. R. has seen, the rent has always, through whatever other parts it may have passed, divided in some direction the cervix, which seems to give way with nearly equal readiness in all parts of its circumference. Of thirty two cases, in 8 the laceration was anterior; in 11, posterior; in 5 lateral; in 3 antero-lateral; in 3 postero-lateral; and in 1 the cervix was separated from the vagina excepting by a shred.

"It would seem to be enough," remarks Mr. R., "for the production of the accident, that the inlet is too contracted easily to admit the descent of the fœtal head, or the breech, should that be the presenting part. In a great majority of instances of slight contraction of the inlet, in perhaps three cases out of four, the diminution of space is caused by the promontory of the sacrum encroaching on the antero-posterior diameter. On this ground, probably, we may explain why, in a somewhat greater number of cases of laceration, the rent is found in the posterior rather than in the anterior part of the uterus. And the cause next in frequency is one or more projections of bone springing from the inner surface of the *ossa pubis* at the symphysis. In all cases of difficult labour, therefore, wherein we are led to examine the condition of the brim, in order to determine the nature of the obstruction, when we are satisfied that the sacro-vertebral angle does not project unnaturally, we ought to direct the finger to the inner surface of the pubis, both to discover if the symphysis is well formed, and also whether there is any bony growth projecting into the pelvis; nor ought the hand to be withdrawn till we have ascertained the figure and dimensions of the brim in its other obstetric diameters."

In regard to the indications of an impending laceration, Mr. R. is inclined to believe, from what he has observed and learned from others, that "a crampy pain and tenderness on pressure, in some particular part of the lower abdomen, precede for a time the laceration of the uterus, occurring from tightness or deformity of the pelvic inlet.

"There is no mystery in the accident more than in the rending of a piece of cloth when it is overstretched. The rent of the uterus, how far soever it may extend in any direction, is always found in its commencement, or in its course, in or near that part which in labour is necessarily jammed between the fœtal head and the edge of the contracted inlet. Hence, as the uterus, in its efforts to force the child into the pelvis, acts by shortening itself, the cervix is, in some parts of its circumference, a fixed point, being held as in a vice, during a pain, between the head and the brim, and, after a few pains, tears at or near this fixed point, the rent extending more or less, according to the force of the pains, the figure of the ledge against which the uterus is jammed, the strength of the viscus itself, and perhaps other circumstances which are unknown to us. From this account, the inference might seem warranted, that the rent must always be near to that part of the brim which is faulty; but a moment's consideration will banish this notion. Undue prominence of the sacro-vertebral angle, were this true, would as a matter of course cause the rent to take place in the posterior wall of the uterus, which is far from being always the case. In this species of deformity the fœtal head necessarily is thrown forward on the top of the pubis, or rather on the anterior half of the brim; and should this portion of the brim be sharp, contracted, or otherwise misshapen, the laceration will probably occur in the uterus in front, or somewhat laterally. That part of the cervix which is at once the *most firmly jammed and nearest the centre of uterine action*, which I take to be the centre of the fundus, will, *cæteris paribus*, the soonest lacerate."

The cause of the *crampy pain* which so generally precedes laceration of the uterus in the cases referred to, Mr. R. supposes to be caused by the vice-like pressure of the cervix uteri, or rather that part of it which is caught between the fœtal head and the brim of the pelvis.

The following are the views of our author in regard to the means to be adopted to prevent the occurrence of laceration, when it is discovered that the head does not pass through the brim, owing to want of space:—

"We cannot, unfortunately, predict of a given case what degree of compression, in a narrow inlet, the uterus will endure without danger. And since, when rupture actually takes place, the mischief is so dreadful, we are not warranted in trying an experiment as to what the uterus will safely bear. Whenever the head is retained above, or firmly locked in the inlet, after labour is begun, I conceive that the accoucheur is bound to regard the case as one of *imminent danger* to the mother. It is true, no mischief may occur for many hours, or even days. The scalp may be pushed, in the form of a cone, low into the pelvis, the bulging part of the head be wonderfully flattened, and the lips of the uterus may hang in the vagina in large tumid lobes; all this I have witnessed; and yet the parent and child shall escape injury. But such instances are no rule. They warn us, it is true, against rash interference; against stepping into the help of nature, without anxious, sedulous, yet calm deliberation. But they ought to influence our practice even less than instances of a diametrically opposite kind, where rupture of the uterus happens in four, six, or eight hours after the first signs of labour; for surely the life of the parent is the first object of consideration. Even her life, doubtless, may justifiably be put in some hazard to afford the fœtus a chance of life—how far is indeed a difficult problem; but, whenever the life of the mother and that of the fœtus are poised in opposite scales, no one can hesitate which ought to preponderate, especially too since, in the case I am supposing, the death of the parent, or rupture of the uterus—which is nearly, at least in a practical point of view, the same thing—occasions the death of her offspring. The data I have furnished appear to me to warrant the following practical rules:—

"1. That as, in the majority of those instances of rupture of the uterus caused by faultiness in the brim, the accident occurs within twelve hours after labour has commenced, the practitioner ought, in every case of labour involving this impediment, to solicit a consultation. Whatever may be the amount of his experience, he is not at liberty to rely solely on his own judgment, if a second opinion can be obtained.

"2. Is there space to admit the passage of the head, allowing for moderate compression and moulding? If this is determined in the affirmative—I say nothing of the facts on which such determination ought to be founded, they are to be seen in the works of Burns and Dewees—then the progress of the labour is to be patiently but most attentively watched. If in the negative, there can be no use in much delay: embryulcia ought to be had recourse to. Moreover, when we have *satisfactory* proof that the fœtus is dead, the head ought to be forthwith perforated, even although we conceive that it might be born by the natural pains; for surely nothing is more absurd than that the uterus of a living woman should be *in any degree* bruised, or its integrity endangered, to preserve the integrity of a dead fœtus.

"3. When it is determined to watch the efforts of nature, the state of the *os uteri* demands particular attention. Blood-letting, if there be the kind of rigidity in which this remedy is useful, should be performed, not forgetting, however, that if the deformity is owing to *malacosteon*, the constitution ill bears the loss of blood. Unless there be entire absence of labour pains, the patient is to lie perfectly still in bed, either on her side or back; if on the former, which is commonly the easier position, the obliquity of the uterus generally requires that the abdomen be supported by a broad flannel binder: when there are labour pains, and the *os uteri* is becoming tumid from compression, we may, if it is practicable, raise the cervix gently with the finger, so as to disengage it from the pressure of the head.

"4. How long is the practitioner to rest satisfied with watching the efforts of nature? This will depend on their effect. If the head moulds readily, the tumefied scalp descends, and the bulging part of the cranium makes some progress through the inlet, we may hope that the base will ultimately be forced down without injury to the mother. But when it is the scalp merely which the pains affect, this is discouraging; and when the head, notwithstanding continued uterine pains, does not become fixed in the brim, but may be raised, on the cessation of a pain, by the finger, then we have reason to fear either that the head is above the standard size, or that the inlet is more contracted than

we had calculated. And what remains is to determine whether to perforate the head at once or to try first what may be done by the forceps, not failing to remember that the pelvis of the mother is not like that of the skeleton, but that it is lined, especially in the inlet, with textures at once most important to life, and easily injured by instruments."

"*How to Turn with the Least Suffering to the Mother,*" is the title of the next essay. It contains many judicious directions how to perform this dangerous operation with the infliction of the least possible suffering to the mother and the greatest degree of safety to her and the child. A careful study of these directions could with propriety be recommended to the student and young practitioner. They contain nothing, however, of a particularly novel character. With the principles and practice they inculcate, the American practitioner is perfectly familiar.

Next in order follow some observations on "*The Causes of Prolapse of the Funis in Labour.*" The funis being a heavy rope, specifically heavier than the liquor amnii, when the waters escape if the presenting part of the child does not occupy the inlet of the pelvis, it floats into the vagina with the current. The chance of the accident will be increased if the patient is standing or sitting at the moment when the rupture of the membranes takes place. Mr. R. relates nineteen cases to establish the correctness of the above statement. We could add double the number.

The mortality from prolapse of the funis in the author's practice has been great. Of twenty-two instances, fifteen of the children were still-born; of the seven children saved, two were footling cases.

The methods pursued by him to save the life of the child were, 1, *Turning.* "In general," he remarks, "turning, even so early as an hour after rupture of the membranes, the head presenting, is attended with difficulty to the accoucheur, with suffering and some danger to the mother, and commonly with destruction to the child. In such circumstances this method ought not to be resorted to. But should the accoucheur be in attendance when the waters give way, and immediately detect the funis, turning is the best resource." In presentation of the funis with the shoulder, the operation, if it be not a first labour, may generally be expected to succeed. 2. *Lodging the funis above the head.* In this manœuvre Mr. R. succeeded in one instance; in two others he failed. He thinks, however, that with a moderate degree of dexterity, the funis may, *now and then,* be successfully reduced. 3. *Delivery with the forceps.*

"*The Best Mode of Securing the Speedy Expulsion of the Placenta*" is next considered. The rules laid down by the author are, to retard or rather regulate the passage of the child through the *os externum* by the hand. When the intervals between the latter stages of labour are unusually long, to apply gently friction to, or to gently and evenly grasp, the *fundus* of the uterus. Whenever labour is attended with cramps in the neighbourhood of the uterus, towards the termination of the process, to cause the patient to turn on her back, and the practitioner with his left hand over the fundus of the uterus to apply gentle pressure and friction. If the placenta is not thrown off within fifteen minutes after the birth of the child, to gently grasp and rub with the hand the *fundus* of the uterus, at the same time cautiously tightening the funis; and to continue the same cautious manipulation of the uterus subsequently to the delivery of the placenta, in order to secure complete and permanent contraction, and thus guard against the occurrence of hemorrhage.

On "*Secondary Uterine Hemorrhage.*" This form of hemorrhage occurs under circumstances such as these: "a woman who has had, perhaps, a favourable confinement, the expulsion of the placenta having been followed by no undue discharge of blood, is seized, after one, two, three, or even four weeks, with uterine hemorrhage:"—excluding of course the menorrhagia lochialis, or constant draining of blood; the flooding which, commencing at the time of or soon after the expulsion of the placenta, returns repeatedly at short intervals, generally attended with after pains, for days or even for weeks, and the floodings caused by portions of the after birth being suffered to remain.

Of this secondary hemorrhage Mr. R. relates fourteen cases. In none of these had the preceding labour been severe; nor does it appear that in any the pla-

centa was extracted by the hand, or that there was much hemorrhage accompanying or immediately following the expulsion of the placenta. In one case, the hemorrhage occurred on the seventh day after delivery, in two on the ninth, in two on the tenth, in one on the eleventh, in one on the twelfth, in two on the fourteenth, in two on the sixteenth, in one on the nineteenth, in one on the twenty-second, and in one on the twenty-seventh. In five of the fourteen cases there was a single attack only of hemorrhage; in the remaining nine, hemorrhage occurred oftener than once.

Although sometimes troublesome to control, still Mr. R. has not met with an instance of secondary hemorrhage that terminated fatally. One of his friends communicated to him one such case.

Secondary hemorrhage is, comparatively, of rare occurrence, happening, probably, not more than once in several hundred puerperal women.

Mr. R. thinks it probable that the discharge of blood in these cases is allied in its nature to menorrhagia; only the discharge is more copious on account of the comparatively greater size of the uterine vessels and the greater readiness with which the uterine cavity admits of expansion in the puerperal than in the unimpregnated state. He doubts whether it be correct to ascribe the hemorrhage solely to the over-tardy contraction of the uterus in the transition from the puerperal to the ordinary state, or to the imprudence of patients in assuming too early an erect position. He is inclined to think that the form of uterine hemorrhage under consideration depends, in a considerable degree, on a menorrhagic diathesis.

"With reference to the treatment," he remarks, "rest in the recumbent position is essential; compression of the abdomen ought to be made by a well adapted flannel binder; in the outset, opium is useful; the plug is sometimes necessary; and the ergot of rye, in small repeated doses, I regard as by far the most valuable remedy. Alterative and aperient medicines are of importance, not in this only, but in the hemorrhages generally attendant upon abortion. As a tonic, I prefer to every other sulphuric acid. In order to perfect recovery, such patients need removal from family cares and duties, a pure air, judicious dieting, and, in most cases, exemption from the drain of lactation."

"*Relaxation and Descent of the Uterus, Vagina, and Bladder in the Puerperal State.*" We can present only the general conclusions of Mr. R. in reference to this subject, drawn, if not entirely from the instances narrated and tabulated in the paper before, still from, as he assures us, sufficient experience.

"1. Descent of one or more of the pelvic viscera is not, as is commonly believed, a complaint chiefly of middle or advanced life. It is true, *complete prolapse*, the last miserable state of the disease, is generally found in those who have passed their thirtieth or thirty-fifth year, but the first stage of descent ordinarily commences early in the child-bearing period of life.

"2. In a majority, perhaps I might say considerable majority, of instances, the complaint follows a first labour.

"3. When first labours are lingering, especially when this is owing to the great size of the child, we are to be on our guard against the occurrence of the complaint during the puerperal period: that is, during the *first six or eight weeks*.

"4. The complaint is curable if early detected; also when the proper treatment is adopted in the puerperal period next following that in which it first appeared. But if there is neglect, each succeeding labour leaves the disease less remediable. And further, when it has once manifested itself in the puerperal state, even although it may have seemed to be cured, we are bound on every recurrence of that state to subject the patient to precautionary restrictions.

"5. Rest in the recumbent posture, which must be nearly uninterrupted, is the most powerful, indeed the chief, means of cure—other measures that science may suggest being meanwhile pursued, especially such as invigorate the health and improve the condition of the womb and vagina.

"6. Those subject to even the slightest visitings of this complaint ought not, commonly, to suckle a longer period than five or six months; since prolonged

lactation, next to frequent child-bearing, tends most powerfully to produce a condition of the vagina favouring *further descent.*

"7. In instances occurring *not in the puerperal state*, the treatment must be adapted to the condition of the patient and other circumstances. Where science has failed in accomplishing a cure, and where there is little or no irritation of the vagina, and but little discharge, the stalk pessary, worn in the day time, will be found useful: but, in the majority of those distressing cases, the perineal supporter is to be preferred. I have tried, in one peculiarly distressing instance, Dr. Marshall Hall's operation, the removal of longitudinal strips of the lining of the vagina, to diminish the canal, but without success. I have also tried to close the vagina in the two lower thirds of its aperture: but when success was likely, a fit of coughing ruptured the adhesions.

"8. Much may be done by change to the dry, bracing air of the sea coast; by attention in other ways to the health; and in particular by a regard to the condition of the uterus itself—to regulate its function, if in the child-bearing period, and to remove engorgement and increased weight of the whole or a portion of the organ, as well as those discharges which depend on inflammatory action in the os and cervix uteri. Without embracing, to the full extent, the views of Dr. Bennett, I assent generally to the truth of what he has written on prolapsus uteri."

"*Cases and Observations in illustration of the Signs of Pregnancy.*" The cases detailed in the present paper are, Mr. R. remarks, a selection meant for the instruction and guidance of junior professional men; who may profit, if they will, by the mistakes of another, instead of purchasing all their knowledge on this subject at the cost of personal experience—a cost those perhaps alone can rightly estimate who have had it thus to pay. The cases are interesting, and, with the remarks of the author which accompany them, are calculated to convey instruction to the young practitioner. We agree as to the correctness of the rules laid down for our guidance, namely:—

"First, always to *doubt* alleged pregnancy in the married when there is a regular, periodical, bloody discharge, however slight it may be. Second, always to *suspect* pregnancy in the married, in the child-bearing period of life, whenever the menses are unduly absent. Third, to *suspect* pregnancy on being called to prescribe for the unmarried, in the rank of servants, when the menses have been suppressed for a couple of months."

These doubts and suspicions are always proper under the circumstances referred to, that we may be upon our guard, and make the necessary investigations to satisfy ourselves as to the existence or non-existence of pregnancy. In the earlier months, to determine this positively may be attended with some considerable difficulty, and an opinion founded upon the absence of the ordinary signs of pregnancy may turn out to be erroneous; but at a somewhat later period, in the indications derived from abdominal auscultation, we have the means of determining with great certainty, excepting in a few cases of very rare occurrence, the existence or non-existence of a fœtus in utero. Of this means Mr. R. makes no mention.

From the next essay, on "*The Puerperal State and its Dangers*," we quote the remarks of the author on the subject of puerperal fever.

During the spring of 1831, this disease prevailed amongst all classes in Manchester, but chiefly among the poor, and produced a large amount of mortality among parturient females.

"On the 4th of January, 1831, a meeting of the medical officers of the Lying-in Charity was summoned, in consequence of a great mortality having occurred during the four preceding weeks among the patients of one of the midwives. The circumstances were found to be these: A midwife in great practice among the patients of the Charity, had, on the fourth of the preceding month, December, 1830, delivered a poor woman, who soon died with symptoms of puerperal fever. From this date to the 4th of January inclusive, exactly one month, this midwife delivered thirty women, residing in different parts of an extensive suburb, of which number, sixteen caught the disease, and all of them ultimately died. These were the only cases of puerperal fever which had recently occurred in connection with the Charity. The midwives, commonly twenty-five

in number, then delivered on an average about 90 women per week, or nearly 380 in a month. Now, of this number, delivered during the month in question, none had puerperal fever excepting the patients of the one alluded to. Yet all the time this woman was crossing the other midwives in every direction, scores of patients of the Charity being delivered by them in the very same quarters where her cases of fever were happening."

It was decided that this midwife should abandon her practice for a period, and go into the country.

"In a short time after this meeting, puerperal fever among the patients of other midwives, as well as in private practice, began to appear in various parts of the town. It never prevailed more generally, nor perhaps ever more fatally, in Manchester. By about the beginning of June it had disappeared.

"The fact that sixteen cases of puerperal fever occurred in one month in the practice of a single midwife, while the patients of the other midwives were exempted from the disease, leads naturally to the conclusion that this midwife was the *medium* of communicating, I take not upon myself to say *in what manner*, the malady from one woman to another, from one affected with the fever to another in health. Again, little more than half of the thirty women delivered by this midwife during the month before mentioned took the fever. On some days all the women she delivered escaped; on other days out of three or four, one or more of them were seized. This is nowise opposed to what is observable in the career of other infectious maladies, and may be explained by assuming that there is a difference in different women, and perhaps in the same women at different times, in regard to predisposition. That the fever was occasionally conveyed *directly* from the diseased to the whole, I possess other evidence. In one instance within my knowledge, a practitioner introduced the catheter, for a poor woman under this fever, late in the evening: and in the course of the same night he had to attend a lady in her confinement, a little way in the country. On the morning of the second day after delivery, this lady had a rigor, and the other early symptoms of the malady. In another instance a surgeon was called, while in the act of inspecting the body of a woman who had died of puerperal fever, to attend a labour; within forty-eight hours after being put to bed his patient was seized with the fever.

"That besides being infectious, that is, capable of being conveyed in some tangible medium from one woman to another, this disease is propagated by a cause of a more general kind, probably existing in the atmosphere, *after the fever has prevailed for some time in a locality*, cannot be doubted. Numerous cases occurred during the epidemic in Manchester, the origin of which could not, I apprehend, have been traced to infection properly so called."

"The cases of puerperal fever, according to my observation," remarks Mr. R., "were resolvable into three classes: first, those, the most numerous certainly, in which no medical treatment was of avail; where the pulse was 140 and upwards, resembling, in the most striking manner, the pulse when rupture of the uterus had taken place in labour; and where the heat of the surface never rose to the natural standard: second, those where leeching, calomel and opium, blisters, and other counter-irritants were indicated, and occasionally proved successful: third, those cases in which bleeding by the lancet, owing to the complete development of the heat of the body, the acuteness of local pain, and the distinctness and comparative strength and hardness of the pulse, was clearly indicated; and which, when employed early in this variety of the disease, was almost uniformly successful. The latter class of cases became more prevalent towards the decline of the epidemic. During the first two months of its prevalence, on the contrary, few recovered."

At the period when this epidemic prevailed, of the township to which it was chiefly confined, we are told, that everything in relation to its sanitary condition was in a most deplorable condition; since that time a great and growing improvement has taken place in the condition of the streets and the dwellings of the labouring classes. It is further stated that, during the last twenty years, though there have been occasional cases of sporadic puerperal peritonitis, the complaint has not been epidemic. How far this exemption is owing to the improved diet, more orderly habits, and supposed greater intelligence of the

labourers, together with the better sanitary condition generally of the town, is an important question.

Of the "*Notes on Subjects connected with Pregnancy and Operative Midwifery,*" though they present many points of interest, and some sound practical observations, we cannot attempt an analysis; nor can we extend this notice of Mr. R.'s work sufficiently to present even a hasty sketch of the leading points embraced in his excellent and judicious defence of scientific midwifery, under the modest title of "*An Apology for the Study of Midwifery as a Science,*" and of the supplementary remarks, on Hindoo Midwifery.

A short account of the "*Treatment of Laryngismus Stridulus, or Child Crowing,*" closes the volume. This paper consists of the history of a series of cases of this disease, presented with the view of illustrating the importance of "a free exposure to a cool, dry atmosphere," as one of the principal means of cure, "especially in the more severe and aggravated forms" of the disease. Although Mr. R. cannot affirm the invariable success of such exposure in arresting the disease, in no instance, he affirms, has it proved injurious. The success of this plan of treatment, in his hands, has been very remarkable—in a large proportion of the cases, decisive. Of course, he adds, the exposure has been had recourse to *with due caution*, a condition necessary, however, in the employment of every kind of remedy possessed of considerable power.

We present the general remarks of the author with which the paper concludes:—

"In reference to these twenty-two cases, the first thing to be noticed is the period of the year at which the crowing commenced, namely, from November to April. Now as the patients were all of a rank above the labouring class, had nurses and nurseries, they would probably be more within doors, be more secluded from the external atmosphere, in a word, would spend a more artificial life, than the children of the latter do in the warmer season. Such infants, assuredly, are habituated to a very different mode of living, when compared with those in a lower station, who are to be seen abroad almost in all kinds of weather, daily, throughout the year. I would not be understood as maintaining that this nursery seclusion explains why the complaint so commonly occurs in winter and spring; but the fact that it is rare in the families of the working classes seems in favour of such a conclusion.

"The age at the accession of the disease was in most cases from about the fifth to the twelfth month. Above twelve months there were only three cases, and the highest of these is fifteen months.

"In connection with the ages of the infants is the *kind* of teeth, the irritation from which may be regarded as perhaps the chief cause of the disease. In eighteen, the irritating teeth were the incisor; in three the bicuspid; and in one the canine.

"With reference to the influence of sex in predisposing to child-crowing, this probably is little if anything. The proportions in the foregoing instances are ten females to twelve males. It is otherwise, however, seemingly with the mortality; for in eight cases of death which have come under my notice during the last twenty-five years—the first happened in 1825—two only were females.

"Concerning the treatment—My remedies are few and simple. In all the infants there was derangement of the first passages; the digestive power was more or less impaired, and the motions were pale or otherwise discoloured, and of a fetid odour. To correct this I have given rhubarb, and mercury with chalk, in small doses, and an occasional teaspoonful of castor oil. Leeches to the head I have rarely advised, unless when the complaint was complicated with convulsions; and even then only when there were drowsiness and heat of scalp. The diet I have regulated with strictness, and am of opinion that a spare diet is of incomparably more importance than any articles of medicine.

"Change of air—and I must be understood to mean change to a cool, bracing atmosphere—does good by soothing the nervous irritability, lessening the activity of the circulation, and producing sleep; while, at the same time, it invigorates the powers of digestion. The change of air acts beneficially much in the same manner as it does in hooping-cough, only it is more generally appli-

cable in child-crowing, is attended with less risk, and is more speedily and certainly efficacious.

"The plentiful use of cold water in the form of sponging was rarely omitted night and morning. In the treatment of the severe and alarming case (VII) in particular, this was found of service, added to atmospheric exposure, as a means of allaying a remarkable degree of irritability.

"Inflamed gums were scarified, and the operation repeated on a return of pain and heat, perhaps every second or third day. A sabre-pointed, rather blunt penknife, was the instrument preferred. In order to its safe performance, there is a precaution worth mentioning. An infant under the disease is irritable, apt to cry vehemently, and so to bring on a spasm. Let the operator proceed at once to pull back the head, and deliberately scarify the gum, and the almost certain consequence will be either a fit of spasm or a convulsion. The precaution referred to consists in gently drawing back the head, and that is sure to produce crying; then letting alone for a little, and again repeating the feint, until there has been free sonorous crying. Now the excess of irritability being expended scarification can be safely performed. The same precaution is applicable in forcibly administering medicines by the spoon. A sudden incautious attempt to give medicine in Case X produced a convulsion." D. F. C.

Art. XVI.—*Cases of Vesico-Vaginal Fistula, treated by Operation.* By Geo. Hayward, M. D. (From "Boston Med. and Surg. Journ.") Boston, 1851: 8vo. pp. 21.

Dr. Hayward's first operation for vesico-vaginal fistula was performed in May, 1839, and an account of it was published in the No. of this Journal for August of the same year. He has since operated frequently, and has met with such satisfactory results as to be induced to give his experience on the subject. He has operated twenty-six times on nine patients—one being operated on six times, another five, two twice, and five once. In three cases the operation was entirely successful; in five the patient obtained great relief, so that the urine could be retained for a number of hours without any escape through the fistulous opening: and in the remaining two, no benefit was derived from it. This is a degree of success highly creditable to the skill of this distinguished surgeon.

Dr. H. gives the following details of his mode of operating, and of managing the patient afterwards:—

"Before the discovery of the anæsthetic powers of ether, I found that the most difficult and painful part of the operation consisted in bringing the bladder down to the os externum. It is now done with comparative ease, and without causing the slightest suffering to the patient. I have administered the ether in the three last operations of this kind, and have been able to bring the bladder down, pare the edges of the fistula, introduce the ligatures and the catheter, and restore the bladder to its place, in twenty minutes; when in all the cases before, in which I did not use it, the same process required an hour, and during the most of that time the patient was suffering severely. Besides, the fistula is sometimes in such a situation, as when it is near the fundus of the bladder, that without this agent, or some similar one, it would be impossible to bring it in view.

"The patient being thoroughly etherized, the bladder can be brought down by introducing a large sized bougie (one made of whalebone, highly polished, is to be preferred) into the urethra, to the very fundus of the bladder, and carrying the other end up to the pubis. In this way the fistula is readily brought in sight. Its edges can be pared with the scissors or a knife, though usually both these instruments are required; and this part of the operation is much facilitated by holding the edges by means of a double hook. In all the cases that I have examined, these edges are thick, hard, and usually of a white colodr. It is not difficult, therefore, to dissect up the outer covering from the mucous

coat of the bladder to the distance of two or three lines. The needles are then to be passed through the outer covering only, and as many stitches must be introduced as may be found necessary to bring the edges of the fistula in close contact.

"Since my first operation, I have used a short needle with the eye near the point, made to fit on to a long handle. The instrument, when the two parts are together, looks not much unlike a tenaculum, though not so much curved, and considerably broader near the point.

"As soon as the needle is passed through one side of the fistula, it is immediately seized by a forceps, the handle is withdrawn, and the needle is then carried through. It is to be then again fitted to the handle, and carried through to the other side in the same way. As many stitches as may be thought necessary to bring the parts into close contact can in this way be taken with great ease. One thread of each stitch is to be cut off; it is convenient to leave the other, as it enables the operator and patient to know when the ligatures have separated from the bladder.

"A large-sized female catheter is then to be introduced into the bladder, and secured there by means of a T bandage. The patient should be laid on her side, with the upper part of the body somewhat raised, so as to facilitate the flow of water through the catheter. This should be removed at least once in every twenty-four hours, as it is very likely to be obstructed by mucus, coagula of blood, and occasionally calculous concretions. In three days I think it safe to remove it altogether, but then it should be introduced at least once every three hours, for ten or twelve days more, so as to prevent any accumulation of urine in the bladder, and consequent strain on that organ.

"The diet should consist entirely of liquid, mucilaginous food; such as an infusion of slippery elm, gum Arabic and water, flaxseed tea, arrowroot, and milk and water. This diet, in my opinion, should be continued till the ligatures come away.

"The bowels should be opened by some mild laxative a few hours before the operation; but it is desirable that they should not be moved again till some days after.

"I think it best for the patient to use the catheter once or twice a day for several weeks, and at any rate during that time to avoid making any strong efforts to expel the urine by the contraction of the bladder.

"It may be proper to add, that I have never had any troublesome hemorrhage from the operation, nor any alarming symptoms after it. In some cases the pain has been severe for two or three days, and once or twice it has run down the limb, apparently in the course of the sciatic nerve. When performed in the way that I have recommended, I believe it to be attended with very little if any danger, as the bladder is not subjected to any considerable degree of violence, nor any part injured to a great extent."

Art. XVII.—*Practical Remarks on the Treatment of Aneurism by Compression.* By Jolliffe Tufnell, M. R. I. A., Surgeon to the City of Dublin Hospital, &c. Dublin, 1851. John Fannin & Co.: 8vo. pp. 154.

It is with unfeigned pleasure that we introduce to our readers this valuable practical work. It consists of observations made at various times at the City of Dublin Hospital, upon a case selected as a subject of clinical instruction for the class in attendance at that institution, which Mr. Tufnell has been induced, by request, to systematize and print, in the hope that, by concentrating practical information, it may be the means of lessening the prejudice which still seems to exist against the treatment of aneurism by compression, and procure for it a more general adoption.

Our author sets out with first detailing the case, which was that of a man labouring under femoral aneurism, who had previously been the subject of this

disease in both popliteal vessels, and who, upon all three occasions, was speedily cured by compression. He then, after a brief history of compression, notices its efficiency in the treatment of aneurism, points out the principal features connected with the treatment of the disease in question, by this method, dwells somewhat upon the practical particulars which must be attended to in conducting this mode of cure, and, lastly, gives a full and valuable *resumé* of the cases which have been treated in Dublin by that method, and contrasts the results furnished by it with those obtained by the treatment with the ligature.

The application of pressure for the cure of aneurism, applied either to the tumour itself, or to the vessel leading to it, it is well known had been practiced, both in Great Britain and upon the continent of Europe, long previous to the year 1820; it was then done, however, with the view of curing the disease by producing such an amount of inflammation in the coats of the vessel as would produce their adhesion. It was not until the year mentioned, that it was employed with any other design, when Mr. Todd, of the Richmond Hospital, Dublin, adopted compression with other views. He used it as a preparatory course to the operation, in order that, "by compressing the principal artery for a few hours every day, mortification of the limb might be prevented, by allowing some progress to be made in establishing the collateral circulation, at the same time *not altogether without hope* that, by diminishing the current of blood in the trunk of the artery, so as to favour the coagulation of the contents of the sac, a cure without operation might be effected." The case proved a failure, but Mr. Duggan, in the next case in which it was tried, in 1824, succeeded, by the use of Todd's instrument, an apparatus resembling somewhat a common femoral truss, in curing a femoral aneurism in less than two months—the patient living upwards of twenty years afterwards. In the following year another case was tried by Mr. Todd, and was successful. Mr. Todd soon after died, the case was not published, and the fact of its mere occurrence in the hospital, says Mr. Tufnell, *made no impression on his colleagues*, and did not establish compression as an ordinary and fixed mode of cure. In 1842, Mr. Hutton had a patient with external aneurism in the same hospital, who declined to submit to the operation by ligature, and from this cause, he resolved, with the approbation of his colleagues, to attempt the cure by compression, a mode that he knew, from general reading, had from time to time been resorted to before, but which he was not aware, until informed by Mr. Adams, had been successfully put in practice by Mr. Todd, nearly twenty years before. The instrument of Mr. Hutton consisted of a circular iron hoop, through one side of which runs a screw, terminating in a pad, which is intended to press directly upon the vessel as it passes over the pubis. In the following year, Mr. Cusack adopted the same means successfully, using for the purpose the instrument which Crampton had invented for compressing the femoral artery in a case of secondary hemorrhage. The next case was that which occurred to Dr. Bellingham in 1843, who, by a similar instrument, produced the consolidation of a large popliteal aneurism in less than forty-eight hours, and so impressed him with the superiority of compression over deligation of the vessel, that he determined to study out the mode of cure, and to establish, by facts, its general adoption.

In a notice of the tract of Dr. Bellingham, on the employment of compression in aneurism, published in this Journal for July, 1847, we expressed the opinion that too much praise could not be awarded to the Dublin surgeons for the reintroduction of the treatment by compression for the cure of aneurism; and that of this praise, no mean share belonged to Dr. Bellingham; and we rejoice to see a fellow-citizen, and worthy co-labourer in the same cause, thus award to him his due meed of praise. "No labour, no pains were spared; steadily he noted every particular; slowly he gained his data; but surely he did his work. Night after night the Surgical Society of Ireland saw him the champion of compression, not vauntingly throwing the gauntlet, but proving its merits, he maintained its right against all comers. His sound and matured opinion was received with confidence by the profession in Ireland. Case upon case was recorded, establishing the views which he advanced. To him, therefore, I think we must concede *the chief credit—the palm of praise.*" Since Dr. Bellingham's case, the only decided improvement in the treatment of aneurism by compres-

sion has been in the kind of instrument employed, and for this we are indebted to Dr. Carte, who substituted an elastic medium for the dead, unyielding screw.

In the opinion of our author, there are, on mechanical principles, two instruments only which deserve attention. These are, either a free weight applied upon the artery where superficially placed at the groin, or the instrument in which an elastic force has been introduced. The form of mechanical arrangement for bringing this force into operation, may be varied in a thousand ways, but the principle, the elastic medium, should be employed.

The weight should be of a conical form, averaging from six to ten pounds, with a small oval pad attached to its smaller end. This is to be laid over the artery in the groin, and retained there by the patient's hand, the leg being semiflexed, in order to relax the fascia. The weight, which Mr. T. considers a most efficient means of controlling pulsation, is only objectionable on account of its being applicable to one spot alone on the artery, viz., that where it covers the pubis.

Of the instruments constructed on the elastic principle, two forms are required—one for the vessel at the groin, the other for that of the thigh; plates of which, together with descriptions of the mode of placing the patient and of applying the apparatus, are given. The necessity for constant supervision of the patient by an intelligent assistant, to guard against the rolling of the pad of the instrument in any movement, or other accident, is also dwelt upon.

Mr. Tufnell, though he admits that total obstruction to the direct flow of blood is not absolutely necessary for the cure of an aneurism, yet is an advocate for the employment of such a degree of pressure as completely to check the pulsation in the tumour to the touch, *though with the least amount of pressure that will produce this end*, believing that, in the majority of cases which have been rapidly cured, complete arrest of the circulation has been made, and that, in cases where the tumour could be carefully examined without disturbing the patient, he has invariably detected the flow of blood into the sac by applying the ear to the tumour, when *to the touch* not a thrill could be felt. The gentleness with which this compression should be made is much insisted on, and the author is particularly careful again and again to repeat that it is *not* to be by means of the dead compression of a screw.

During the whole treatment, if any uneasiness is felt by the patient, do not wait for him to make complaint of pain; the thigh apparatus (which should have been already loosely applied) is to be brought into play. Close attention is to be given to the points of pressure, and, if any irritation arises, the part should be sponged with cold water, and the weight substituted for a while; or in popliteal aneurism, the circular compress may be removed to the entrance to the canal in the adductor muscles. If the case progresses favourably after the application of compression, the first change of importance that occurs is in the outline of the sac, which becomes better defined; the *bruit* too is less distinct, the swelling pulsates less strongly, and the patient does not feel the sac distended by the influx of blood as plainly and painfully as at first.

When these symptoms occur, if the circulation has not previously been completely controlled, by now cutting it off altogether, a few hours will often suffice to produce consolidation in the sac. Sometimes, however, instead of the tumour remaining stationary, and gradually becoming harder, it is not solidified, but appears daily to decrease, seemingly as though the walls of the sac were to a certain degree collapsing, and this continues day after day, until eventually the aneurism becomes like a fibrous cord. In either case of recovery, however, whether quick or slow, the compression should not be at once removed on the cessation of pulsation, but continued in a diminished degree for forty-eight hours after all trace of it has ceased, in order to allow a pedicle of fibrine to extend itself into the artery.

Of the objections urged against compression, one is that the subsequent use of the ligature is interfered with in cases where that method cannot be borne, in consequence of the vein and artery being so injured as to render it dangerous subsequently to apply a ligature to the spot. That injury *may* be done Mr. Tufnell believes, but thinks it must arise from want of care on the part of

No.	Surgeon.	Sex.	Age.	Form of disease.	Where treated.	When treated.	Duration of compression.		Result.	Where published.	Remarks.
							D'ys.	*H'rs.*			
1	Hutton	Male	30	Popliteal	Richmond Hospital	Oct. 3, 1842	28	..	Cured	Dub. Med. Press, 1843	
2	Cusack	do.	55	do.	Steevens's Hospital	Jan. 17, 1843	31	..	do.	Dub. Journ. 1843	
3	Bellingham	do.	32	do.	St. Vincent's Hosp.	March 25, 1843	2	..	do.	Dub. Med. Press, 1843	Same individual as No. 5.
4	Harrison	do.	29	do.	Jervis St. Hospital	May 9, 1843	93	..	do.	Brit. Assoc. Rept. 1843	
5	Bellingham	do.	33	Femoral	St. Vincent's Hosp.	June 20, 1844	43	..	do.	Dub. Med. Press, 1844	Same individual as No. 3.
6	Kirby	do.	28	Popliteal	Jervis St. Hospital	July, 1844	53	..	do.	Dub. Med. Press, 1844	
7	Cusack	do.	26	do.	Patients' Residence	Nov. 15, 1844	7	..	do.	Dub. Med. Press, 1845	
8	Porter	do.	29	do.	Meath Hospital	Dec. 31, 1844	24	..	do.	Dub. Quart. Journ. 1846	
9	Cusack	do.	30	do.	Steevens's Hospital	March 12, 1845	20	..	Died of Disease of Heart	Dub. Quart. Journ. 1845	
10	Hutton	do.		do.	Richmond Hospital	June 23, 1845	21	..	Ligature applied	Dub. Med. Press, 1850	Artery tied and recovered.
11	O'Ferrall	do.	32	do.	St. Vincent's Hosp.	June 25, 1845	33	..	Cured	Dub. Quart. Journ. 1846	
12	Cusack	Female	40	Brachial	Steevens's Hospital	July 9, 1845	9	..	do.	Not published	Traumatic from gun-shot injury.
13	Porter	Male	20	Popliteal	Not stated	July 28, 1845	20	..	do.	Dub. Quart. Journ. 1846	
14	Macdonnell	do.	32	do.	Richmond Hospital	Nov. 1845	2	..	do.	Dub. Med. Press, 1846	Left femoral previously tied for popliteal aneurism of that side.
15	Cusack	do.	33	do.	Steevens's Hospital	Feb. 1846	43	..	do.	Dub. Quart. Journ. 1846	
16	Bellingham	do.	38	do.	St. Vincent's Hosp.	Feb. 10, 1846	..	..	Died of Erysipelas	Dub. Med. Press, 1846	
17	O'Ferrall	do.	37	do.	St. Vincent's Hosp.	April, 1846	11	..	Cured	Dub. Quart. Journ. 1846	
18	Humfrey	do.	43	do.	Royal Mil. Infirm.	Feb. 9, 1846	..	10	do.	Dub. Med. Press, 1846	Previous but ineffectual compression had been made.
19	O'Brien	do.	34	do.	Adelaide Hospital	Oct. 1846	72	..	do.	Dub. Med. Press, 1846	Interrupted pressure at intervals.
20	Bellingham	do.	34	do.	Patients' Residence	Feb. 1847	21	..	Pressure discontinued	Not published	The aneurism never increased. Is the same individual as No. 19, but on the opposite limb.
21	Smyly	do.	48	Femoral	Meath Hospital	April, 1847	70	..	Cured	Dub. Med. Press, 1850	
22	Humfrey	do.	31	do.	Royal Mil. Infirm.	July, 1847	..	33	do.	Dub. Med. Press, 1847	
23	Tufnell	do.	27	Popliteal	Patients' Residence	Nov. 5, 1847	6	..	do.	Dub. Med. Press, 1847	Same individual as Nos. 28 and 36.
24	Cusack	do.	30	do.	Steevens's Hospital	April 22, 1847	4	..	do.	Dub. Quart. Journ. 1847	Traumatic aneurism.
25	Orr	do.	27	Brachial	City Dublin Hosp.	Aug. 21, 1847	..	..	Ligature applied	Dub. Med. Press, 1848	High bifurcation. Two vessels secured. Recovered.
26	Fox	do.	30	Femoral	Military Infirmary	May 10, 1848	..	..	Amputation	Dub. Med. Press, 1848	Recovered.
27	Hutton	do.	34	Brachial	Richmond Hospital	July 22, 1848	12	..	Cured	Dub. Med. Press, 1849	Traumatic aneurism.
28	Tufnell	do.	28	Popliteal	Patients' Residence	Nov. 1848	42	..	do.	Dub. Med. Press, 1849	Same individual as Nos. 23 and 36.
29	Hutton	do.	32	do.	Patients' Residence	Jan. 3, 1849	..	7	do.	Dub. Med. Press, 1849	
30	Crampton	do	11	Radial	Patients' Residence	July 28, 1849	..	16	do.	Dub. Med. Press, 1849	
31	Banon	do.	27	Popliteal	Jervis St. Hospital	Sept. 1849	5	..	do.	Dub. Med. Press, 1849	
32	Clayton	do.	25	do.	Military Infirmary	March, 1850	..	39	do.	Not published	Same.
33	Clayton	do.	25	do.	Military Infirmary	April, 1850	..	..	Amputation	Not published	Recovered.
34	Read	do.	28	do.	Mercer's Hospital	Aug. 1849	..	..	Died	Dub. Med. Press, 1851	Died of diseased heart and lungs.
35	Hargrave	Female	22	Femoral	City Dublin Hosp.	July, 1850	20	..	Cured	Unpublished	
36	Tufnell	Male	29	do.	City Dublin Hosp.	Sept. 1850	13	..	do.	Unpublished	Same individual as Nos. 23 and 28.
37	Bellingham	do.	44	Popliteal	St. Vincent's Hosp.	Dec. 1850	..	23	do.	Unpublished	
38	Quigley	do.	32	do.	Artillery Hospital	Jan. 1851	..	..	Amputation	Unpublished	Recovered.
39	Colles	do.	29	Femoral	Steevens's Hospital	Feb. 1851	37	..	Cured	Unpublished	

the surgeon conducting the case, either in using improper instruments, or, having proper instruments, in letting them be improperly applied. Four cases are appended to show that in practice subsequent deligation of the artery at Scarpa's space has not been impeded by it, and the post-mortem appearances of those cases are given where compression has been used, in which death subsequently permitted the examination of the limb to prove that, when properly employed, no injurious effect is exercised either upon the vessels themselves, or those parts that become the subject of subsequent operation.

Another assertion that has been put forth is, that pressure as a mode of cure is ineffectual. In reply to this, Mr. Tufnell states the fact that, in a period of eight years, in all the hospitals of Dublin, and in private practice as well, the ligature for external aneurism has only been resorted to three times; in every other instance (thirty-seven cases), compression has been used, and almost with uniform success.

Along with this table of cases which he presents, the particulars of all those attended by unfavourable results are subjoined—a plan which cannot be too warmly praised, and one which, were it generally followed in surgery, would lead us to a more just estimate than is now had of the benefits derived from operative procedures.

The table on the opposite page contains thirty-nine cases of aneurism, which have been treated by compression, in Dublin, during the past eight years.

In 30 of these, the cure has been complete.

In one compression was discontinued, the aneurism not increasing subsequently in size.

In two the ligature was resorted to successfully.

In three amputation was necessary.

In one case death ensued from erysipelas.

And two died from co-existing disease of the heart.

At the close of his work, Mr. Tufnell contrasts the mortality attendant upon the treatment of aneurism of the lower limb by compression with that following the treatment by the ligature. Concerning this, it will be sufficient here to say that, from a paper quoted by him, contained in the No. of this Journal for October 1849, it appears that, out of one hundred and seventy-seven cases of ligature of the femoral artery for aneurism, thirty-eight died, and that nearly one out of every three cases operated on either terminated fatally, or was to a certain extent maimed for the remainder of life. G. W. N.

Art. XVIII.—*The Pharmacopœia of the United States of America.* By the authority of the National Medical Convention, held at Washington, A. D. 1850. Philadelphia, Lippincott, Grambo & Co. 1851. 8vo. pp. 318.

In accordance with a usage which may now be considered as established, the lapse of another decennial period becomes the occasion of a revised edition of the National Pharmacopœia. The industry of the committee selected by the Convention to perform the task of revision and publication, has promptly given the work to the profession, by whom it has been awaited with considerable interest.

In point of dress, the volume has been produced in a very beautiful and substantial style, the paper being white and the type large. We notice one or two typographical errors; but they are of a character to be readily observed, and are none of them calculated to mislead. While acknowledging, however, the abstract excellence of the present edition, we very much doubt whether the publishers have chosen the form best adapted to meet the public wants and interests. A work, which, if appropriately printed in a small or medium-sized letter, would form but a thin 16mo. or duodecimo manual, cannot be expanded with elegance or advantage into a super-royal octavo volume: and whatever superior dignity may be supposed to attach to the latter size, or whatever

greater legibility secured by its pica type, or whatever better pretext afforded by its cubic inches for an exorbitant price, certain it is that its circulation is very seriously restricted, and its consultation (when possessed) in no trifling degree impeded by such an arrangement. True, "it has always been so;" but this is no reason for its continuing to be so.

We are informed that this size is rendered necessary by the high price paid for the copyright. But this imposition of a tax—altogether profitless, and often prohibitory—is a great wrong to the medical and pharmaceutical professions, and through them to the public at large. The book should be burdened only with its expenses; and every encouragement presented to its universal adoption as the sole standard of designation and of preparation.

It is a melancholy fact that a very large portion of the regular medical profession seems to be almost in the condition of a druggist of a neighbouring city, who, when asked if he had yet seen the new Pharmacopœia, inquired, in ingenuous surprise, what it was! We believe that very few physicians adhere carefully to the technicology of the Pharmacopœia in writing their prescriptions; although this claims the authority and exhibits the deliberate and combined wisdom of the entire profession. On the contrary, each one seems disposed to illustrate his independence by adopting what he may think the clearest or the shortest designation, almost without reference to a common standard, and apparently regardless that his order for medicine is addressed to any one of a numerous and scattered fraternity. It is but the other day that our newspapers gave us an account of a physician's prescription in which the universally familiar *Oleum Ricini* was metamorphosed, by the writer's etymological idiosyncrasy, into the unheard of *Oleum Resini*, which, by an apothecary's heedless construction, resulted in the death of the patient! Nowhere is a uniform language so all important as in the prescription of medicines, often the messengers of life or death! And in no way can this uniformity be obtained, except by a common authority, universally recognized and rigidly observed. Could the Pharmacopœia be published at a lower price, and in a neater and more convenient form, there can be no doubt that it would have a much wider and a much more beneficial influence; that it would be more likely to become what it should be—the Physician's "*Vade Mecum.*"

Internally, the new Pharmacopœia exhibits the evidence of a careful and minute examination; and, whatever difference of judgment may exist in regard to minutiæ, of the general execution and character of the work there can be but one opinion. It is worthy to take its place beside the similar publications of any other nation.

In its general plan, there has been no change from the preceding edition (that of 1840), "as in the opinion of the committee no arrangement could be devised better calculated to present the subject in its various details, in a clear, convenient, and impressive manner." It is a matter for congratulation to observe that, after the fullest reconsideration, so little change of nomenclature has been found necessary; and the fact forms a pleasing evidence of the general accuracy attained in the former revision. Upwards of forty names were changed in the edition of 1840; while, in the present edition, we believe the number does not exceed half that amount. The number of substances and preparations of the old Pharmacopœia rejected in the new, amounts but to five; while the number dismissed in 1840 was thirty-four. The new drugs and medicinal preparations introduced amount to seventy; and the list forms a valuable accession to the officinal "armory." Among them we notice Chloroform, Collodion, Glycerine, Powder of Iron, &c., and an entirely new class of "Fluid Extracts," a series of elegant preparations, convenient of administration, concentrated in strength, and very faithfully representing the medicinal properties of the substances employed. We notice with pleasure that the "Syrupus Acaciæ," dismissed in 1840, has been restored to its place in the present edition. It is often a very desirable adjuvant. The number of new articles introduced in the edition of 1840 was one hundred and twelve; a considerably larger number than that of the present one.

The general arrangement of the subjects into two classes, the "Materia Medica," and the "Preparations," although a sufficiently obvious distinction

in a majority of cases, is, when closely examined, found to be more formal than substantial. It is true that this system is now tolerably well established, both by previous custom, and by the example of most Pharmacopœias; still we know of no good reason why the various preparations of a substance should not be grouped together immediately after the article from which they are obtained. The distinction between the materia and preparations—even on the grounds indicated in the preface—"the former enumerating and defining medicines as they are derived from nature or furnished by the manufacturer, the latter containing formulæ or rules by which they are prepared for use," is often very obscure, not to say fanciful. The accident of locality, or the extent and character of production, become the leading principle of classification, so that a nice calculation of per centage in profit may perhaps be the sole criterion between a "materia" and a "preparation." We notice that (from some such a subtle consideration no doubt) the *Oil of Cloves*, and the *Oil of Cubebs*, formerly belonging to the materia medica, are now considered preparations; while *Acetic Acid* has been transferred from the latter to the former head. It certainly does not seem a very scientific arrangement to include the Oils of *Almond*, *Bergamot*, *Cinnamon*, *Lemon*, *Nutmeg*, &c., in one department, and the Oils of *Anise*, *Clove*, *Lavender*, *Sassafras*, *Valerian*, &c., in another; nor are the reasons for such a division very obvious. Again, *Sulphur Lotum* (included in the materia medica) is certainly a preparation, as it is very rarely met with in commerce, and must generally be prepared by the pharmaceutist. On the other hand, *Quinia*, *Morphia*, and the alkaloids generally, seem naturally to fall within the definition of materia medica; since these substances, or their salts, exist in nature, and are produced by the manufacturer and not by the druggist.

This incongruity is noticed in the Preface, and is thus explained: "Among the preparations will be noticed several substances which are now seldom made by the apothecary, being obtained almost exclusively from the manufacturing chemist. They have been retained in their present position, because, in our widely-extended country, circumstances may not unfrequently render it desirable that the apothecary should be able to prepare them in the absence of a due supply; and, though the processes might not have been introduced if now claiming admission for the first time, yet having a place already in the Pharmacopœia, it has not been deemed advisable to omit them, and transfer their products to the Materia Medica. The circumstance that these substances are placed among the preparations, does not preclude their purchase from the manufacturer when they can be procured of the proper quality." This concession—as it seems to us—is virtually a surrender of the principle adopted as the basis of arrangement; and a practical negation of the sentiment before expressed when adverting to the classification into Materia Medica and Preparations, that "the propriety of such a division is too obvious to require comment."

On the whole, we think the distinction entirely artificial, and the separation attended with no practical advantage: while it not unfrequently involves the inconvenience of a double reference before an article is found.

In the department of "Preparations" in the new Pharmacopœia, we notice several desirable alterations: "many of the processes have been amended, replaced by others, or altogether omitted;" and the amendments are generally characterized by increased precision, and minuteness of detail. Thus, instead of simply designating "Peruvian Bark" for the Tincture, Infusion, &c., as formerly—the kind of Cinchona is specified, whether Red, or Yellow. This is an improvement of no slight advantage in view of the importance of having a uniform preparation. Instead of the *Extractum Cinchonæ* of 1840, we now have *Extractum Cinchonæ Flavæ*, and *Extractum Cinchonæ Rubræ*. The propriety of having two preparations scarcely distinguished from each other may perhaps be doubted. We think the latter extract might very well have been dispensed with.

We observe that in the Materia Medica list, the indefinite term *Cinchona* has been retained; although all the varieties used—the *Flava*, the *Rubra*, and the *Pallida*—are afterwards specifically mentioned, and separately defined. The circumstance of an article holding the incompatible relation of being ostensibly co-ordinate with others which are really its divisions, is certainly an anomaly.

We believe there is no other instance in the book in which a generic term is thus employed. *Cinchona* is not properly an article of the Materia Medica, nor is it used in a single preparation—thanks to the precision of the present Pharmacopœia.

In directing infusions, tinctures, &c., to be made by "displacement," the Pharmacopœia, very unnecessarily as it appears to us, reiterates at each preparation the whole process of operation. The direction looks very much as if it had been stereotyped. It would have saved considerable space, and we think would have detracted nothing from the perspicuity or utility of the work, if a full exposition of the method had been given once for all, at the head of the preparations; and merely the quantities and time of maceration had been stated (when necessary) in individual cases.

With an allusion to one more point, we shall close our notice. "It will be observed that the Latin names are generally used in the singular number, even though the idea of plurality may be essentially connected with the medicine. Thus *Cantharis, Caryophyllus, Ficus, Galla, Limon*, &c., are used instead of the plural of these terms respectively; and in reference to the names derived from the part of the plant employed, the same plan is mostly followed, as in the case of *Stramonii Semen, Colchici Semen*, &c. In this the example of the Roman medical writers, particularly of Celsus, has been followed. The leaves, however, are expressed in the plural, as *Stramonii Folia*, &c., which is also in accordance with the practice of the same classical author. In the use of English names, it is not deemed necessary that they should be literal translations of the Latin terms; but that title is preferred, which custom and the genius of the language seem to sanction. . . . . We may correctly say *Caryophyllus, Galla, Prunum*, and *Rosa;* but the genius of our language requires that we should translate these terms *Cloves, Galls, Prunes*, and *Roses.*"

If we may venture to differ from such respectable authority on a point of some nicety and importance, we think this idea is founded in a mistake. However common the terms *Cloves, Galls, Prunes*, &c., may be in ordinary language, we believe that a close consideration will discover them to be decidedly unphilosophical as applied pharmaceutically. The idea embodied in the title of a remedial agent has no reference whatever to numerical character as indicating one or more—but regards solely the abstract quality of the substance. The designation, therefore, to be appropriate, should be abstract, and not concrete. By the universal genius of language, a plural term cannot be abstract: it indispensably involves the idea of two or more individuals conceived separately, even while contemplated collectively. Thus "men" must mean specific individuals; while "man" may abstractly express the sum of all the qualities constituting human nature.

In like manner the oil secreted by a single rose-leaf is as truly and entirely *Oleum Rosæ*, as that from all the Orient. But it certainly is not "Oil of Roses." Just as rational and just as necessary would it be to say "Oil of Cod-livers" or "Oil of Flaxseeds." Popular usage should not be suffered to vitiate the precision of a technical nomenclature. We therefore think that it would have been a most desirable and praiseworthy reform to have abolished the family of plurals *in toto*—however uncouth this change might occasionally appear until justified by scientific use. A. B. T.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the separate course of Sensation, Volition, and the Involuntary Power from and to the Brain, the Oblong Medulla, and the Spinal Cord.* By Joseph Swan.—The oblong medulla may be divided into four principal parts. The anterior central part forms the pyramidal bodies; these, with the crura of the brain, give origin to several motive nerves, and may be called the voluntary tract. The posterior surface forms a layer which contains the floor of the fourth ventricle, and forms a bed for the origin of the auditory nerve, and a great portion of the fifth; this may be called the sensitive tract. Between the two preceding tracts there is a large ganglion or case, filled with gray and white matter; and this may be called the involuntary tract. Besides these, there are at the sides the restiform bodies, principally derived from the cerebellum; but it is not intended further to notice them.

The sensitive tract in the oblong medulla is a layer of moderate thickness. It passes upwards as far as the nates, and then obliquely across and underneath these to the inner and posterior margin of the thalamus; it here forms a cord as thick as a swan's quill. It passes outwardly across the thalamus, underneath the optic tract; it sends off a layer of wavy tracts or lines underneath the epithelium of the posterior and descending horns of the lateral ventricle, and is then intermixed with the white matter of the posterior lobe of the brain.

The voluntary tract, after forming layers in the annular tubercle, and combining with the inferior pedicle of the cerebellum, forms the external portion of the crus of the brain, especially that bounded by the involuntary tract and the black matter. The larger part of it passes upwards, communicating freely with the middle and broad portions of the striated body, in its course to the white matter leading to the great commissure and the convolutions of the brain.

The involuntary tract forms, in the oblong medulla, between the sensitive and voluntary tracts, a broad and thick triangular and somewhat heart-shaped ganglion or case, having partitions filled with gray and white matter; below, it sends processes downwards, to pass at the bottom of the longitudinal fissure between the two anterior quarters of the spinal cord. Opposite the crura of the brain it divides into two portions, each of which is a cylinder, containing pouches filled with gray and white matter. On arriving at the thalamus, each passes outwardly and anteriorly to the sensitive tract; at this part the cylinder forms a distinct ring, from which the involuntary tract is continued across the thalamus, between the sensitive and voluntary tracts; and, after communicating with the narrow end of the striated body, becomes combined with the white matter leading to the great commissure and the convolutions of the brain.

In the horse, ox, pig, and sheep, the sensitive tract passes from the posterior surface of the oblong medulla nearly as in man; it forms an expansion underneath the epithelium lining the posterior horn of the lateral ventricle, and the

rest is combined with the white matter corresponding with that in the posterior lobe of the brain in man.

The voluntary tract in animals is very similar to the same in man, except that it undergoes a more simple change in the smaller annular tubercle on becoming combined with the inferior pedicles of the cerebellum.

The involuntary tract in animals is a most curious and interesting structure. It is firmer than any other part of the brain, and, in external appearance, very much resembles a ganglion of the sympathetic nerve. It begins in the thalamus, at the ring by which the soft commissures communicate. It is surrounded by the third ventricle, and its continuation downwards lies beneath the passage from the third to the fourth ventricle. In the fourth ventricle it lies immediately underneath the central part of the sensitive tract. At the ring it forms a large, round, or oval case of white matter; this is composed in the centre of oblong cells, plainly distinguished by the naked eye in the horse; and into these the gray matter of the soft commissure enters for connecting their two sides. The ring is very large in the horse; it is connected to the nucleus of the white matter of the brain anteriorly, and with the tænia, and through this with the sensitive tract. From the posterior and outer side of this case white fibres pass off, which go through the narrow end of the striated body to the white matter leading to the convolutions; these fibres correspond with the same termination of the involuntary tract in man. Both sides of the lower end of the case become concentrated in a large ganglion of the size of half a swan's quill; this is soon joined by a similar ganglion from the opposite case. The ganglion thus formed contracts to the size of a goose's quill; it then enlarges again in the oblong medulla, and assumes an oblong and pyriform shape, the narrow end being continued into the spinal cord, where it lies in the bottom of the longitudinal fissure formed by the two anterior quarters. The case and ganglions communicate by numerous fibres, especially laterally, with the contiguous parts of the brain, and with the oblong medulla and spinal cord. In the ox the case and ganglia are similar, but less. In the sheep they are also similar, but less than in the ox. In the pig the same parts are also similar; the ganglia are not quite so large as in the ox, and are less oval in shape. This large ganglionic mass appears as if it were the source of vital power—for giving energy to all the other parts—for exciting involuntary action constantly in some parts through the fibres it sends through the narrow end of the striated body—and for calling into action all the other parts, when any necessity arises for their assistance.

This brief paper is the result of very numerous dissections, and is an outline of my very constant occupation for many months.—*London Medical Gazette*, Feb. 1851.

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2. *New Muscular System discovered in the Mucous Membrane of the Stomach and Intestines.* By Ernst Bruecke, Prof. Phys. Univ. Vienna. (Communicated by Prof. Van der Byl.)—At a meeting of the Imperial Academy of Sciences of Vienna, held on the 13th February, 1851, Professor Bruecke communicated his discovery of a muscular system in the mucous membrane of the stomach and intestines. In examining the intestinal villi of fowls, geese, dogs, and human subjects, with reference to the origin of the chyle vessels, he met with a system of longitudinal fibres, which in their morphological characters were found by him to correspond exactly with organic muscular fibres. He now remembered that, already in the years 1842 and 1843, Lacauchie, Gruby, and Delafond (from observations made by Lacauchie on recently killed animals, and by Gruby and Delafond on living ones), attributed a power of motion to the intestinal villi—and therefore sought to convince himself of the correctness of this statement.

After narcotizing a dog, according to the method proposed by Professor Ludwig of Zurich—by injecting a strong solution of the diluted alcoholic extract of opium into the jugular vein until the animal was entirely insensible—Professor Bruecke laid open the abdominal cavity by cutting through the linea alba, and then opened the small intestine in several places. On now drawing a thin blunt probe very lightly, but somewhat rapidly, across the mucous membrane, he dis-

tinctly saw the villi which had been touched shortening and thickening themselves. Professor Bruecke did not see them become long and slender on irritation, as Gruby and Delafond pretend also to have observed; and he doubts this change of shape as an active condition, since he was unable to find any circular fibres in the villi. Nor did the lateral motions take place, as described by Gruby and Delafond; but he does not deny their possibility, since they might be produced by the fibres on one side of a villus contracting, while those on the other side remain relaxed.

Professor Bruecke, now no longer doubting the nature of the fibres observed by him, sought to investigate their extent and attachment in the intestinal canal of human subjects and dogs, and found that in the villi he had observed only the most remote tendrils (Ausläufer) of an expansive muscular system which extended through the mucous membrane of the stomach and intestines.

The principal layer of this muscular system is situated in the stomach below the pepsin glands—in the small intestine, below the Lieberkühnian follicles—in the great intestine, below the glandulæ tubulatæ (simplices minores of Böhm), and consists of an external layer of longitudinal and an internal layer of circular fibres. Situated on the inner surface of the latter (or internal) layer, we have an irregular meshwork of these fibres, which surround the basis of the above-named glands, and pass between them to reach the very surface of the mucous membrane, where they are only covered by the epithelium, basement membrane, and capillary vessels. It is to this meshwork and *its tendrils* that the villi owe their contractile powers.

Note by Dr. Van der Byl.—In sending this communication, I may add that, through the kindness of Professor Bruecke, I have had an opportunity of examining this new muscular system in the stomach and intestines, and convincing myself of the contractile power of the villi. The following remarks may perhaps aid those who are willing to repeat the observations described in this paper:—

1. *To observe the Contractions of the Villi.*—The intestine being slit open, we must not rest disappointed if the contractions do not take place immediately. In the last dog experimented on by Professor Bruecke, the contractions of the villi became strongest about a quarter of an hour after the internal surface of the intestine had been exposed to the air; and, indeed, they may not set in until twenty minutes or half an hour after they are laid open. The contractions are not to be expected where the surface is granular (for here the villi are already contracted, as we may see from their thick round apices); on the contrary, the florid velvet-like surface, covered by a thin layer of transparent mucus, will exhibit the contractile power of the villi most satisfactorily.

2. *To demonstrate the Muscular Fibres in the Fresh Villi.*—Remove a few villi from the intestinal surface, and spread them out on a glass (dissecting them a little, if necessary). On examination with the microscope, we usually find some broken through, and see the fibres hanging from the broken extremity. With a high power, we can then examine the fibres individually.

3. *To demonstrate the Layers of this Muscular System.*—For this purpose it is necessary to boil the stomach and intestines in dilute acetic acid, or common vinegar, after the manner proposed by Purkinje, many years ago, for other purposes. When the organs are very thin, we wait until the acid boils, and then dip them in for a few minutes;—thick organs, however, are put in when the acid is placed on the fire, and removed as soon as it boils. After such boiling, the stomach and intestines are spread out, and allowed to dry moderately. When too dry, they become very brittle, and it is then extremely difficult to get good sections. Since the layers are comparatively very thin, for their better observation the sections should be made obliquely, not perpendicularly, to obtain a greater surface.—*Monthly Journ. Med. Sci.*, April, 1851.

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3. *Experiments on the Pancreatic Fluid of the Calf.* By M. J. L. Lassaigne.—Since it has been shown that the pancreatic fluid extracted from the dog enjoys the remarkable property of making an emulsion with oil, and of causing its transformation into fatty acids, either at ordinary temperatures or at the temperatures of the bodies of mammalia, it has become matter of interest to submit

to similar experiments the pancreatic fluid obtained from a large herbivorous animal, with the view of ascertaining if it acts in the same manner.

M. Colin, director of the anatomical department of the school of Alfort, having procured some of it, by the method shown to him by M. Bernard, and which he had successfully put in practice with the dog, a small quantity was sent to M. Lassaigne, which he immediately examined.

The pancreatic fluid of the calf, which has an amber yellow colour, is inodorous, is transparent and limpid, and possesses a tolerably marked saline taste; when tested with reddened litmus paper, it restores the blue tint. Heated, it becomes opalescent and turbid, and deposits some coagulated white flakes, which attach themselves to the sides of the vessel in which the experiment is made.

The small quantity at the author's disposal not permitting of a direct analysis, he thought it right to examine, in concert with M. Colin, the action which it exercises on oils.

For this purpose he divided it into several portions in glass tubes, and added to each portion a drop of pure olive oil. The agitation to which he subjected the tubes formed no emulsion—the oil separating speedily, and floating on the top.

The prolongation of the experiment did not produce any effect, even after eight hours of contact at a temperature of 60° Fahr., the oil having remained neutral, and the liquid preserving its primitive alkalinity. Subsequently exposing these same tubes in a salt-water bath to 100° Fahr., and keeping up this temperature for fourteen hours, produced no change in the properties of the oil, or in those of the pancreatic juice subjected to the experiment.

This result is opposed to that obtained from the pancreatic juice of the dog,—is it constant in the herbivorous animal, or is it an exceptional occurrence due to an alteration in the pancreatic juice of the animal, caused by the painful operation to which it had been subjected? The author does not admit the latter hypothesis, seeing that the animal survived, and did not appear to suffer in health.—*Monthly Journ.*, May 1851, from *Journ. de Pharmacie*, March, 1851.

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4. *Further Experiments on the Pancreatic Juice of the Dog.* By M. J. L. Lassaigne.—We know, from the interesting experiments of MM. Bernard and Barreswil, that the pancreatic juice possesses the remarkable property of forming an emulsion with fatty bodies, either vegetable or animal, and of transforming them into fatty acids and glycerine, at the temperature of from 95° to 100° Fahr.

M. Bernard, in subsequently repeating, at the school of Alfort, along with M. Colin, the process by the aid of which he obtained the pancreatic fluid from animals, remitted to M. Lassaigne a portion of this juice, which he had extracted himself from a dog of middle size.

The experiments to which he submitted it allow him to add some facts to those already known, and of which the principal may be stated in the following propositions:—

1. The action of the pancreatic juice upon oils is produced even at the temperature of 53° to 60° Fahr. in some hours. In fact, on moistening several points of blue litmus paper with the emulsion produced by the olive oil and pancreatic juice, the moistened portions of the blue paper reddened shortly, from the circumference to the centre, on exposing to the air; and to produce this effect, it was not found necessary to leave the mixture during twelve or fourteen hours at the temperature of the bodies of mammalia, as has been advanced by the authors quoted above.

2. The mixture of the pancreatic juice and oil becomes acid at ordinary temperatures, as the author has ascertained after an experiment of similar duration.

3. This acidification is produced in oxygen, air, hydrogen, nitrogen, and carbonic oxide gases; the air does not seem to participate in this singular change, which is perhaps due to a force of the same nature as that designated, by Berzelius, "catalytic force," to explain certain reactions in organic and inorganic chemistry.

4. The pancreatic juice can preserve its alkalinity and property of acting on oil for several days.

5. Under the same circumstances in which the oil is modified by this fluid, sugar and gum undergo no alteration, a circumstance which points out the speciality of the action which it exercises on fatty bodies.—*Ibid.*

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5. *Absence of the Sternum in a Child aged Eleven Years.*—An instance of this rare deformity is related in the *Zeitschrift für die Gesammte Medicin.*, by Dr. Louis Benjamin. The sternum was replaced by two long narrow cartilaginous bands, commencing at the clavicle, and extending to the level of the seventh pair of ribs. Between the two bands was a space occupied solely by the soft parts, and which was perceptibly elevated at each systole of the heart. The child's health was remarkably good, and the respiratory functions were performed as in health.—*Prov. Med. and Surg. Journ.*, May 28th, 1851.

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6. *Total Absence of Uterus.*—Dr. Ziehl records (*Medicinisches Correspondenz Blatt*) an example of this in a woman fifty-seven years of age, who had been married at thirty two, and until the latter years of her life had enjoyed excellent health. She had never menstruated, but had at times a mucous discharge from her vagina. Her body was well formed, breasts well developed, her voice and manners those of her sex. Coitus had never been completely accomplished, and she was indifferent to it. She died of phthisis.

On examination, not the slightest trace of a uterus could be found. The external organs were well developed. The vagina was so contracted as scarcely to admit the index finger, and terminated at the extent of an inch in a cul-de-sac. The Fallopian tubes were in the broad ligaments; the fimbriated extremities were normal; the abdominal opening of the tubes was open; there was no uterine opening. The ovaries were firm and dry, puckered on their surface, and containing in their interior small compact protuberances.—*Gaz. Méd. de Paris*, Jan. 4, 1851.

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7. *On the Parovarium of the Female, the Analogue of the Epididymis in the Male.* By Professor Kobelt.—The *Wolffian* bodies are generally believed to be peculiar to intra-uterine life, and to disappear in both sexes without leaving any trace of their existence. The author, however, affirms that it is possible to demonstrate anatomically, that these organs in both sexes, generally regarded as temporary, continue throughout life, and that they do not begin to waste until after the cessation of the generative functions. The following paragraphs contain the pith of this interesting essay:—

1. In the earliest periods of intra-uterine life there is no distinction of sex, the elements of both sexes in fact existing in every individual.

2. The "generative gland" may become either a testicle or an ovary.

3. By means of the excretory ducts of this gland, that is to say, by the *canal of Müller* in the female, and the excretory duct of the *Wolffian body* in the male, each embryo assumes the attributes of one or the other sex.

4. The sexual difference consists in the development of one of these ducts, and the arrest of development in the other.

5. In the male, the Wolffian body does not disappear entirely, but it constitutes in chief part the epididymis; its cul-de-sac forming the *coni vasculosi* of the epididymis.

6. The superior culs-de-sac of the excretory duct of the Wolffian body become effaced, or converted into hydatid vesicles. The inferior culs-de-sac also disappear, or are converted into *vaso aberrantia Halleri.*

7. The excretory duct of the Wolffian body forms the canal of the epididymis and vas deferens.

8. In the female the Wolffian body never entirely disappears, but it contributes to the formation of a new body, discovered by Kobelt, and called by him the *parovarium.* This body is placed between the ovary and the Fallopian tube.

9. The culs-de-sac disappear or become *coni vasculosi* as in the male, others become the vesicles so often observed in the fringes of the Fallopian tube; others, again, the inferior ones, disappear altogether.

10. The excretory duct of the Wolffian body is arrested in its development. The duct of Müller becomes the Fallopian tube.

11. Hermaphrodism is caused by the persistence of all the elements of the generative tissues.

[In connection with the above we may append the conclusion respecting the Wolffian body, extracted from an inaugural thesis, by Dr. Follier:—]

The Wolffian bodies are developed in two distinct portions on each side of the spine, originating in special organic cellules, and not as an expansion of either of the allantois or of the vesicula umbilicalis. The generative gland (either ovary or testicle, as the case may be) is formed quite independently of the Wolffian bodies. These bodies are formed of tubes, at first straight, but afterwards becoming tortuous, and ending in an excretory duct. The excretory duct of the generative gland is developed independently of that of the Wolffian bodies, which bodies are not completely effaced at birth. In the female they persist partly in the form of small canals situated in the broad ligament, near the ovary, and in some instances appear in small cysts. In the male the remains of the body are found near the head of the epididymis, and consist of small diverticular canals, the *vasa aberrantia Halleri*, and the hydatid of Morgagni. The author denies that, as Kobelt asserts, the canalicules of the Wolffian body form the vasa efferentia of the testicle.—*Provincial Med. and Surg. Journ.*, May 14th, from *Recherches sur les Corps de Wolff.* 1850.

ORGANIC CHEMISTRY.

8. *On so-called Chylous Urine.* By H. Bence Jones, M. D., &c.—The definition given of chylous urine is, that it is urine which is white from the suspension of fatty matter in it. An opportunity of observing a case of this disease having occurred to the author, he was led to make the experiments described in this paper. A harness-maker, æt. 32, half-caste, who had lived in London for twelve years, had been passing such water for nine months. On examination of the water made at 2 P. M. it solidified, looking, in ten minutes, like blanc-mange. It was very feebly acid, contained fibrin, albumen, blood-globules, and fat; specific gravity = 1015. 1000 grs. of this urine gave—

44.42 grs. total solid residue.
8.01 grs. total ash.
14.03 grs. albumen.
8.37 grs. fat.
13.26 grs. urea and extractive matter.
.75 grs. loss.
955.58 grs. water.

In order to watch the variations produced by food and exercise in the appearance of the urine, every time the urine was made, for five days and nights, it was passed into bottles marked with the hour. From these observations, and more particularly from the third, fourth, and sixth days, it was evident that the fibrin and albumen appear in the urine when no fat is there, and that the albuminous urine occurs before food has been taken, and disappears during the night with perfect rest. Thus, the fourth day, at 7h. 15m. A. M., on first getting up, the urine contained the slightest trace of albumen. The specific gravity = 1027; the precipitate by alcohol = 0.8 gr. per 1000 grs. urine.

At 9h. 50m. A. M., just *before* breakfast, the urine formed a solid coagulum, free from fatty matter, but contained a visible deposit of blood. Specific gravity = 1015.6; the precipitate by alcohol = 14.1 grs. per 1000 grs. of urine.

At 11 A. M., the urine was chylous or white from fatty matter.

Further experiments on the influence of rest and motion in lessening or increasing the albumen in the urine previous to food are then given.

On five different mornings, by rising early or late, and by collecting the precipitate from the urine by alcohol, the influence of rest and motion was determined. The author states that he could fix beforehand whether the urine should be albuminous or not, by directing the patient to get up, or to lie still.

The patient was bled, and the serum was opalescent, but did not clear with ether; the blood contained no excess of fat. 1000 parts of blood gave—

2.63 grs. fibrin.
159.3 grs. blood-globules.
78.1 grs. solids of serum.
240.03 grs. total residue.
759.97 grs. water.

The urine made the same day was examined at different hours; that made immediately before the bleeding was quite white, and that made an hour and a half afterwards was very milky also. Specific gravity = 1018. 1000 grs. of urine gave—

56.87 grs. total residue.
10.80 grs. total ash.
13.95 grs. albumen.
7.46 grs. fat.
24.06 grs. urea, &c.
.60 gr. loss.
943.13 grs. water.

The conclusions from these experiments are—

1. That so-called chylous urine, besides fat, may contain albumen, fibrin, and healthy blood-globules.

2. That, although the fat passes off in the urine after food is taken, yet the albumen, fibrin, and blood-globules are thrown out before any food has been taken. During perfect rest, the albumen ceases to be excreted; and it does not appear in quantity in the urine even after food is taken, provided there is perfect rest. A short time after rising early, the urine may coagulate spontaneously, although no fat is present: and this may happen previous to food, when the urine is free from fat.

3. Though the urine made just before and a short time after bleeding was as milky as it usually was at that hour of the day, yet the serum of the blood was not milky: it did not contain a larger quantity of fat than healthy blood does.

The general results are—

1. That the most important changes in the urine in this disease take place independently of the influence of digestion.

2. That the urine in one respect only resembles chyle, and that is in containing, after digestion, a large quantity of fat in a very fine state of division. The supposition that the disease consists in an accumulation of fat in the blood, which is thrown out by the kidneys, carrying with it albumen, fibrin, blood-globules, and salts, is altogether disproved, both by actual analyses of the blood, and by the frequent occurrence of a jelly-like coagulum in the urine when no white fatty matter can be seen to be present.

3. The disease consists in some change in the kidney by which fibrin, albumen, blood-globules, and salts are allowed to pass out, whenever the circulation through the kidney is increased; and if at the same time fat is present in the blood, it escapes also into the urine. That this change of structure is not visible to the naked eye on *post-mortem* examination, Dr. Prout long since demonstrated; and in a case of this disease which was in St. George's Hospital, and was examined at Plymouth, no disease of the kidney was observed. From the total absence of fibrinous casts of the tubes from the urine, it is not improbable that by the microscope a difference may be detected in the structure of the mammary processes, rather than in that of the cortical part of the kidneys. —*Philosophical Transactions*, 1850.

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9. *Remarks on the Cooking and Preserving of Meat.* By Prof. Liebig.—The view that broth derives its nourishing properties essentially from the dissolved gelatin—an opinion which has frequently been discountenanced in practice—is shown by this investigation to be completely untenable. The gelatin imparts no taste to broth, and forms by far too insignificant a portion to allow of its

nutritious properties being dependent upon it. Chopped beef, or veal, previously exhausted in the cold, when boiled for five hours, yielded to the broth, the former 0.5 per cent. and the latter 1.5 per cent. of soluble constituents, of which gelatine formed, at most, but one-half. On the contrary, this investigation confirms the view of Prout, that the peculiar constituents of broth exist ready formed in the flesh, and are by no means merely products of the process of ebullition. The residue of the chopped muscular flesh of different animals —as of the fox and ox—after having been exhausted in the cold, cannot be distinguished the one from the other; all the peculiarities of the flesh, especially its flavour, depending entirely upon the soluble constituents which are found in the broth.

The researches of Liebig offer a simple and convenient method of preparing, in a few minutes, a broth of the highest nutritive properties. Finely-chopped lean beef is mixed with an equal weight of cold water, and left, if possible, to macerate for a short time, and the whole then slowly heated to ebullition. After gently boiling for some minutes, the clear broth separates from the coagulated albumen, and from the muscular fibre, which has now assumed a sinewy appearance. After straining, it requires only to be seasoned, and slightly coloured with burnt onions, or with caramel. The colouring of the broth is nothing but a concession to the common prejudice, which cannot, however, be well dispensed with. By evaporation in a water-bath, or at a still lower temperature, the broth becomes spontaneously coloured, and leaves behind a brown extract, possessing a delicate odour of roasted meat; this extract, when dissolved in about thirty parts of water, and flavoured with salt, yields, at any moment, a most excellent broth. The advantage of extract of flesh for the nutrition of invalids, its use in hospitals, or in field service, as well as in domestic economy, is sufficiently obvious. We see, likewise, that bone-broth, broth-tablets, &c., being preparations essentially different from a true broth from flesh, cannot enter into competition with it as articles of food.

As an article of commerce, extract of flesh bears somewhat too high a price. It appears, however, to offer a new source of profit to the inhabitants of the different settlements in America and Australia, who might successfully prepare it from their cattle at a cheaper rate, and send it to the markets of our crowded populations.

As to the cooking of meat, it follows that to prepare, by boiling, a rich broth, and, at the same time, a savoury *bouilli*, is perfectly impossible. After preparing broth to the above directions, the meat which remains is perfectly unpalatable, tasteless, and tough, and as dissimilar as possible to the boiled beef of our tables. If, on the other hand, it be desirable to leave in the boiled meat the greatest amount of nutrition and flavour, it must be at once plunged into boiling water. If the temperature, after some minutes, be reduced to about 158° Fahr. by the addition of cold water, and the water maintained at that temperature until the meat is thoroughly cooked, all the conditions necessary for this purpose will have been fulfilled. If it be perfectly established that pure fleshy fibre—viewed independently of the juice—instead of being softened by boiling, is converted into a horny or sinewy mass, it is evident that this change is prevented by two different means in the ordinary mode of cooking meat: in the first place, by the temperature in the interior of the piece of meat never reaching the boiling heat; and, in the second place, by its being, nevertheless, sufficiently high to coagulate the albumen which surrounds, and, to a certain extent, protects the fibre. The temperature in the interior of the meat is not only sufficient to coagulate the albumen (132° Fahr.), but must attain even the point necessary for the coagulation of the colouring matter of the blood (from 149° to 158° Fahr.).

The investigation of Liebig exhibits the process of salting meat under a perfectly new aspect. The "brine," which meat and dry salt form when together, amounts to from one-third to one-half of the juice of the meat, and contains the chief constituents of concentrated broth. The brine presents an acid reaction, and, owing to the quantity of albumen present, coagulates when boiled; it contains, moreover, phosphoric acid, lactic acid, a large amount of potassa, kreatinine, and, doubtlessly, also kreatine. There can be no doubt, therefore,

that salting diminishes the nutritious properties of meat, by the amount of constituents which pass into the brine; hence the explanation of the well-known injurious effect on health produced by the continued consumption of salt meat. —*Liebig's Report*, vol. ii.

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10. *On the Oxidation of Ammonia in the Human Body, with some Remarks on Nitrification.* By H. B. Jones, M. D.—The author having shown, in a paper lately communicated to the Royal Society, that the effect of tartrate of ammonia on the acidity of the urine was totally different from that of tartrate of potash, and that carbonate of ammonia, taken in very large quantities, did not produce any alkaline reaction of the urine, but that, on the contrary, the acidity was rather increased than diminished by such doses, repeated the experiments with carbonate of ammonia, hoping to obtain more decided results. Although, from these experiments, it was again apparent that no diminution of the acid reaction resulted from taking carbonate of ammonia, yet the fact of any great increase in the acidity of the urine could not be determined. In his former paper, the author suggested that an inquiry into the occurrence of nitric acid in the urine would probably give the solution of this unexpected effect of carbonate of ammonia; and he was led to undertake the experiments described in the present paper with a view of detecting the presence of that acid under particular circumstances.

The indigo test for nitric acid being more delicate than the protosulphate of iron test, it was chiefly employed; but a mixture of starch, with a drop or two of solution of hydriodate of potash and hydrochloric acid, was found to be a far more delicate test than either. Beginning with 10 grs. of nitrate of potash added to 10 oz. of urine, it was found at last that as little as 1 gr. of nitre to 10 oz. of urine could be detected with the greatest certainty and clearness when the starch test was used; but this quantity could not be detected as surely by the indigo test.

Experiments are described in which carbonate of ammonia was given, in doses varying from 40 grs. to 7 grs., to a healthy man in whose urine no nitric acid could previously be detected; and the urine was tested at intervals of several hours after each dose. From these it appears that 10 grs. was the smallest quantity that gave decided evidence of nitric acid by both tests.

Having satisfied himself that when carbonate of ammonia was taken, small quantities of nitric acid passed off in the urine, the author made similar experiments with tartrate of ammonia, administered in doses of 60 and 40 grs.; and in each case the starch test gave evidence of the presence of nitric acid in the urine some hours after. Similar experiments with the muriate of ammonia are next described; and in these the presence of nitric acid in the urine was readily detected three hours after the administration of the dose, even when it was so small as 10 grs.

By an experiment described in the paper, it was shown that, by a simple combustion of ammonia out of the body, as well as in the body, nitric acid was produced. From other experiments it appears that urea, also, by oxidation, whether in the body or out of the body, gives rise to nitric acid.

Having found that nitric acid was produced more readily and frequently than had been supposed to be the case, the author was led to try whether combustions in the atmosphere without ammonia could not give nitric acid. The presence of this acid was, in consequence, detected in the products of the combustion of alcohol, of coal, of a wax candle, and of hydrogen.

As this led to the supposition that nitric acid might exist in rain-water at all times, experiments were made on the rain-water collected on wet days in London, and the presence of nitric acid was discovered by the starch and also by the indigo test.

The conclusions the author comes to from his experiments are:—

1. That the action of oxygen takes place in the body, not only on hydrogen, carbon, sulphur, and phosphorus, but also on nitrogen.

2. That in all cases of combustion, out of the body and in the body, if ammonia be present, it will be converted partly into nitric acid.

3. That the nitrogen of the air is not indifferent in ordinary cases of combustion, but that it gives rise to minute quantities of nitric acid.

He further remarks, that the production of nitric acid from ammonia in the body adds another to many instances of the action of oxygen in man; and that the detection of nitric acid in the urine may lead to the conclusion that the blood is being freed from ammonia, or from substances closely related to it, as urea, or possibly caffeine and other alkaloids.—*Monthly Journ. Med. Sci.*, May 1851.

MATERIA MEDICA AND PHARMACY.

11. *New Experiments on the Woorara Poison.* By MM. Cl. Bernard and Pelouze.—It appears from these experiments, an account of which was read before the Academy of Sciences of Paris, that the action of the woorara is instantaneous when it is injected directly into the vessels. When the jugular vein of dogs and rabbits has been thus injected, the animals have died as if struck with lightning, without screams or convulsions. If the woorara is introduced under the skin in solid fragments or in solution, its action is not so rapid, and in proportion with the size of the animal and the dose. Birds and mammalia die in a few minutes, but it takes several hours to destroy a reptile with the poison. Birds and dogs do not seem immediately affected after the puncture: the former fly for a little while, but soon fall and die without a struggle; the latter walk about at first, then lie down as if tired, and seem to fall asleep and die imperceptibly. Galvanism has, after death, no influence on the nerves, the blood is black, refuses to coagulate, and is no longer reddened by the contact of the air.

The woorara may without danger be ingested into the digestive canal, but if the poison be mixed with gastric juice, and introduced under the skin, it takes effect. Thus it would appear that the woorara is not decomposed in the stomach, it is merely dissolved in that organ, but the mucous membrane does not absorb it. A simple experiment will prove that this property of mucous membranes is of a purely physical and not a vital nature. If a piece of gastro-intestinal mucous membrane is adapted to a glass tube, with the mucous surface turned outwardly, a watery solution of sugar having been introduced into the tube, the liquid will rise in the tube if it be plunged into a solution of woorara, endosmosis will have taken place, but no woorara has traversed the membrane. The poison will, however, penetrate the membrane if the latter be not fresh, and the contact last very long.—*Lancet* 15th March, 1851.

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12. *Preparation of Atropine by means of Chloroform.*—The following method of employing chloroform for the purpose of separating organic alkalies has been proposed by M. Rabourdin, of Orleans:—

The expressed juice of the fresh belladonna is heated until the albumen coagulates, and then filtered. To the cold, clear fluid are added 4 scruples of caustic potass and 30 scruples of chloroform per pint; the whole is then agitated for a minute and allowed to depose. In half an hour the chloroform deposes, charged with atropine, under the appearance of a greenish oil. The supernatant fluid is now decanted and replaced by some water; the latter is also decanted, and the operation repeated until the water comes off limpid. The solution of atropine in chloroform is now distilled in a sand-bath, until all the chloroform has passed off, and the residue is dissolved in a weak solution of sulphuric acid, which takes up the atropine. To obtain the latter in a perfectly pure state, we add carbonate of potass in excess, collect the residue, dissolve it in alcohol, and evaporate the latter.—*Med. Times*, May 24th, 1851, from the *Bulletin de l'Institut.*

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

13. *Value of Vaccination.*—[Dr. Guy, in his interesting lectures on public health, now in course of publication in the *Medical Times*, has brought forward the following striking statements illustrative of the great value of vaccination, and of the vast saving of human life and human suffering it has been the means of effecting:—]

In the history of small-pox, we have three different periods to compare with each other: a period anterior to the introduction of inoculation; a period during which inoculation was practiced; and a period during which inoculation was superseded by vaccination. As inoculation was introduced into England in 1721, the deaths from small-pox during the ten years ending 1719 will fairly represent the mortality occasioned by small-pox, unmodified by the practice of inoculation. Now, as I have already stated, the practice of inoculation did not gain much ground till towards the middle of the 18th century, and did not become general in England till the last quarter of that century. Hence the ten years from 1740 to 1749, inclusive, will correspond to the introduction of inoculation into partial use; and the ten years from 1790 to 1799, inclusive, will mark the time when it was largely and generally practiced. In like manner, the ten years from 1810 to 1819, inclusive, will represent a period during which inoculation was to a great extent, though by no means altogether, superseded by vaccination. The ten years from 1840 to 1849, inclusive, will represent a period when small-pox inoculation, having fallen into entire disuse, and been even declared an illegal practice, vaccination has come to be the only preventive of small-pox employed or permitted. It must not, however, be forgotten, that large numbers of persons still remain unvaccinated, though the greatest possible facilities are offered for the performance of the operation, and that without charge to the poor.

I have arranged the deaths by small-pox for the five periods of ten years each to which I have just referred, in a tabular form, so that the numbers may admit of easy comparison.

	Deaths from Small-pox.	Estimated Population within the Bills of Mortality (limits in 1726.)	Deaths from Small-pox in a million inhabitants.
1. Ten years ending 1719, before inoculation	21,228	675,691	31,416
2. Ten years ending 1749, inoculation partially practiced	20,029	708,188	28,282
3. Ten years ending 1799, inoculation in general use ..	17,685	773,344	22,863
4. Ten years ending 1819, vaccination in general use ..	8,334	1,035,865	8,045
5. Ten years ending 1849, inoculation superseded by vaccination (whole metropolis).....	9,174	1,912,172	4,798

A small decrease in the number of deaths from small-pox, coincident with the partial practice of inoculation; a still more marked decrease under the more general use of that palliative; but a far more remarkable falling off in the number of deaths from small-pox, concurrently with the introduction and extension of vaccination: such are the results stamped on the very face of the table which you have before you,—results fully borne out by Mr. Farr, who says that, "In 1771 to 1780, not less than 5 in 1000 died annually from small-

pox; while in 1801 to 1810, the mortality sank to 2; and in 1831 to 1835, to 0.83," or less than 1 in 1000.

The decrease in the number of deaths from small-pox in the second and third periods of ten years, is a circumstance in favour of the views of the supporters of inoculation, who affirm that that practice, though objectionable in one point of view, was on the whole beneficial.

That inoculation may really have been the means of saving life to some extent does not seem altogether improbable, when we bear in mind that in place of the mortality of *one in four*, which attended the small-pox caught in the usual way, the loss under inoculation, when skilfully and carefully practiced, did not exceed *one in* 500. So that it is quite possible that the mischief which inoculation wrought by spreading the disease among those who might never have caught the natural small-pox, was counteracted by the good it effected in reducing the danger to a very insignificant amount. But even admitting the justice of this compensation, the benefit really due to inoculation does not exceed the saving of 8500 lives in 31,500; whereas the boon conferred by vaccination is represented by a reduction of the mortality from nearly 23,000 in the ten years ending 1799 (the very heyday of inoculation) to 8000, and then to less than 5000, being a saving of life more than twice as great as that effected by inoculation.

But the superiority of vaccination over inoculation is only partially and imperfectly represented by the greater saving of life which it effects. It has the great additional merit of requiring no preparation or confinement, of producing very trifling indisposition, and of entailing no danger. Above all, it is free from the great objection to inoculation, that, while it mitigates the disease in the individual, it brings the infection home to those who may happen to be unprotected, and who might never have been exposed to the contagion of the natural small-pox.

Taking all these considerations into the account, there can be no doubt that the legislature was perfectly justified in rendering the performance of inoculation a legal offence, and in giving, by the appointment of public vaccinators, to be remunerated by a moderate fixed charge, large facilities for carrying the blessing of vaccination to the very doors of the poor.

But, undisputed as is the superiority of vaccination, and undoubted as are the benefits it has conferred, they are small indeed compared to those which it was calculated to bestow if the practice of it had been as universal as it ought to have been. It was the cherished opinion of Jenner himself that we possess in vaccination a means of entirely eradicating the small-pox, and some facts are on record which seem fully to bear him out in that view of the case. Thus, Sir Gilbert Blane tells us that he was informed, on good authority, "that vaccination had been practiced with so much energy and success in Lima that for the last twelve months there had occurred not only no deaths from, but no cases of small-pox; that the new-born children of all ranks are carried as regularly to the vaccination-house as to the font of baptism; that the small-pox is entirely extinguished all over Peru, nearly so in Chili, and that there has been no compulsory interference on the part of the Government to promote vaccination." Sir Gilbert Blane goes on to say, "It is now matter of irrefragable historical evidence, that vaccination possesses powers adequate to the great end proposed by its meritorious discoverer in his first promulgation of it in 1798, namely, the total extirpation of small-pox. The first proof of this was at Vienna, where, in 1804, no cases occurred except two strangers, who came into the city with the disease upon them. In 1805, there did not occur a single death from it in Copenhagen."

I quote this more detailed account of the progress of the small-pox in Denmark from a MS. of Jenner's, published by Dr. Baron in his Life of Jenner. "From the year 1762 to 1792, the number that died of small-pox in the Danish dominions amounted to 9728. About the year 1802, vaccination was first introduced, and the practice became general, but not universal; however, fifty-eight persons only died of the small-pox to the year 1810. Vaccination, by command of the king, was now universally adopted, and small-pox inoculation prohibited. And from the year 1810 to the year 1819, not a single case of

small-pox has occurred." From the same MS. I quote the following passage: "From Bombay, I learn the small-pox is there completely subdued, not a single case having occurred for the last two years."

"Dr. Sacco, the indefatigable superintendent of vaccination, in Lombardy (I resume my quotation from Sir Gilbert Blane), stated, in his annual report, 3d of Jan. 1808, that small-pox had entirely disappeared in all the large towns in that country; and that in the great city of Milan it had not appeared for several years. Dr. Odier, of Geneva, so favourably known for his high professional, scientific, and literary acquirements, testifies that, after a vigorous perseverance in vaccination for six years, the small-pox had disappeared in that city and the whole surrounding districts, and that, when casually introduced by strangers, it did not spread, the inhabitants not being susceptible. The central committee in Paris testify, in their report of 1809, that the small-pox had been extinguished at Lyons and other districts of France." "These (I still quote from Sir Gilbert Blane) are selected as some of the earliest and most remarkable proofs of the extirpating power. But it is demonstrable that if, at the first moment of this singular discovery, at any moment since, at the present or any future moment, mankind were sufficiently wise and decided to vaccinate the whole of the human species who have not gone through the small-pox, from that moment would this most loathsome and afflicting of all the scourges of humanity be instantaneously and forever banished from the earth." If for this somewhat too enthusiastic view of the case, we substitute (what Sir Gilbert Blane probably intended to affirm) that if in any way it could be brought about that every man, woman, and child, for a term of years, could be vaccinated, small-pox would gradually die out, and ultimately disappear, like a fire extinguished for want of fuel, we should be stating what all experience and analogy seem to warrant. In our own country, we have not, that I am aware, had any proof afforded us of the extirpating power of vaccination. But we have had some striking and encouraging illustrations of the power of vaccination when systematically practiced. The army affords us one such instance. In Her Majesty's dragoon guards and dragoon regiments, which, in common with the rest of the army, are submitted to inspection, and vaccinated without exception, if that operation is found to have been omitted, "the deaths from small-pox during a period of seven and a quarter years, in an average annual strength of 6165 men, were only *three*—a proportion which would represent an annual mortality of 1 in 14,900 adult males!"

The value of vaccination is shown in a very remarkable manner by the experience of certain severe epidemics of small-pox, which have taken place since vaccination came into general use in this country. There was such an epidemic in Scotland in 1818-1819, when a careful analysis of the cases showed that, out of 205 cases occurring in persons unprotected either by vaccination or previous small-pox, 50 died, being one death in every *four* cases; out of 71 cases in which small-pox had occurred a second time, there were *three* deaths, or one in 23; while out of 310 cases, occurring after vaccination, one only died! In this instance, then, the protecting power of vaccination proved to be more than 13 times as great as the protecting power of small-pox itself. A similar result was established in the epidemic of small-pox which occurred at Marseilles in 1828. It was estimated that the population consisted of 8000 *unprotected* persons; of 2000 who had been *inoculated*, and of 30,000 who had been *vaccinated*. Now, of these 8000 unprotected persons, 4000, or one-half, were attacked by small-pox; of the 2000 who had been inoculated, 20 were attacked, being 1 in 100; and of the 30,000 who had been vaccinated, 2000, or 1 in 15, were attacked. The mortality of the several classes was as follows: Of the 4000 unprotected persons, 1000, or 1 in 4, died; of the 20 inoculated persons, 4, or 1 in 5; of the 2000 vaccinated persons, 20, or 1 in 1000! It would seem, then, that the practice of vaccination is less effectual in preventing small-pox than that of inoculation; but that, at the same time, the disease, when it does occur after vaccination, is of so mild a character as to destroy only 1 life for every 20 sacrificed by small-pox occurring after inoculation.

The relative value of vaccination and inoculation, and the proportional risk of the protected and unprotected, will be best seen by supposing 15,000 unpro-

tected, inoculated, and vaccinated persons, respectively, to be exposed to the danger of catching small-pox. The result as regards these several parties are shown in the annexed table :—

	Unprotected.	Inoculated.	Vaccinated.
	15000	15000	15000
Attacks	7500	150	1000
Deaths	1875	30	10
Ratio of attacks	1 in 2	1 in 100	1 in 15
Ratio of deaths to attacks	1 in 4	1 in 5	1 in 100

In order to form a just idea of the superiority of vaccination, we must not forget to add to the lives saved by it, the blindness, deformity, and lingering debility which it is the means of preventing in those cases which do not prove fatal; for it may safely be assumed that these untoward consequences bear a certain relation to the fatality of the disease, being of more frequent occurrence where the mortality is highest.

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14. *Case of Small-Pox recurring a third time after Vaccination, when it proved fatal.*—Dr. John Webster communicated an example of this to the Royal Medical and Chirurgical Society, Feb. 26, 1851. After alluding to the fact that hooping-cough, measles, and scarlatina generally occur only once during the lifetime of an individual, exceptions, nevertheless, to the above rule, as well in these complaints as in small-pox, have been recorded by authors. Three well-marked examples of the recurrence of small-pox met with in the same family are related, one of which terminated fatally. The case especially referred to by Dr. Webster was that of H. N. N——, who had been vaccinated satisfactorily in 1827, when three months old. Notwithstanding this circumstance, he became attacked by small-pox in 1833, along with an elder brother, who had been likewise vaccinated. Both patients recovered, and nothing more was thought of the matter till 1838, when the two lads were again attacked by variola, along with another—that is, a third—brother, likewise regularly vaccinated. However, all three got quite well in due time. Subsequently, Mr. H. N. N——, whose case is now just mentioned, went to India in the Company's service, where he was seized, in April last, with the usual and well-marked symptoms of small-pox, which soon became confluent, and proved fatal at Dharwarinth, on the 13th of that month; this making the third time this gentleman had been attacked by variola, although previously vaccinated.

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15. *Case of Confluent Small-Pox after a third Vaccination.*—The following case of this kind was communicated to the Royal Medical and Chirurgical Society by Dr. A. P. Stewart. A gentleman twenty-five years of age, who had been five years apprenticed to a gentleman in extensive general practice in Devonshire, had been most successfully vaccinated when six months old. Requiring to attend variolous cases, he had the operation repeated in July, 1849, without effect, and again in May, 1850, with much irritation, inflammation, and swelling of the arm, the lymph from the vesicle not communicating the disease. He came to London to begin his medical studies on the 13th of October last, having been exposed to infection the same morning. The train of premonitory symptoms set in on the 15th, and was followed (on the 17th) by the appearance of a closely packed eruption of papulæ all over the body. For four successive nights, mild delirium was present; but the sore throat and conjunctivitis occasioned by the pressure of vesicles were quickly relieved by the application of a solution of nitrate of silver; and the pulse, previously as high as 120, never rose above 100 after the seventh day. The vesicles, though very numerous on the hands and feet, caused little or no pain; on the eleventh day of disease, and seventh day of eruption, they were at their height, and in the course of the next two days, had nearly all dried up and scaled off, with very trifling discharge. Thereafter convalescence went on rapidly. In the district where the subject of this attack resided, the popular prejudice against vaccination has always been so strong that for a number of years it had been much neg-

lected; and the parents are still in the habit of inoculating their children. During the last nine months, it has been practiced to a very large extent, with so much secrecy as to defy the utmost efforts of the authorities to obtain legal proof, and with the effect of keeping up the disease during many months, and spreading it abroad over the whole district. It was introduced in April by a sweep boy, who took it in a town not far off, and, returning to his family, communicated it to his unvaccinated brothers and sisters. The latter, again, going to a lace school, infected several of the other children, after which it spread rapidly in all directions. Several instances were adduced, as examples of a large number in which inoculation had entirely failed to protect those who had been subjected to it, from secondary attacks; besides the case of a lady of title, whose mansion was in the infected district, and who had lately had a second attack of natural small-pox The author then stated, as the result of his and Dr. A. Anderson's experience in the Glasgow Fever Hospital, from November, 1836, to November, 1838, that of the 126 cases admitted, 31 were vaccinated, 52 doubtful (consisting of unvaccinated, with a sprinkling of imperfectly vaccinated patients), and 43 unvaccinated. The mortality among the "doubtful" was 1 in 3.06, or 32.7 per cent.; among the unvaccinated, 1 in 2.86, or 34.8 per cent.; while among the vaccinated it was only 1 in 31, or 3.2 per cent. The author concluded his remarks by adducing his experience in the north-west district of St. Pancras parish, during the epidemic of 1845. Those who had been successfully vaccinated, both children and parents, though exposed night and day, in their unventilated dwellings, to the concentrated infection of the disease in its worst forms, were proof against it; while those in whom the evidence of success was doubtful, were not proof against the milder forms, and very often took the disease from convalescents whom they met in the open air. The author concluded, with Chomel, that "we cannot fairly exact more from vaccination than from the small-pox itself."

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16. *Protective Power of Vaccination.*—[The reading of the two preceding cases before the Royal Medical and Chirurgical Society gave rise to an extremely interesting discussion, during which, Dr. Gregory made some statements of great importance, and the correctness of which is well worthy of investigation. We subjoin the report of the discussion as given in the *Lancet*, March 8:—]

Dr. Gregory said that the cases detailed were interesting, and contained much which was worthy of the consideration of the Society. With respect to the first case, in which a person contracted small-pox in advanced life after vaccination, and died in India, he might remark, that the disease was more fatal in warm climates, and the case in this respect was not remarkable. The similarity of the cases, however, consisted in the statement which had been made, that these patients had small-pox three years after, and again five years after vaccination. Now, he would beg to ask Dr. Webster, who attended these cases, was he acquainted with the medical man who had the patients under his charge? He asked this, in order that it might be determined if the disease under which these patients laboured was variola or not. Certain it was that he (Dr. Gregory) never saw such cases; they never presented themselves at the Small-Pox Hospital. He must, therefore, be excused from doubting whether these cases were really cases of variola, until the doubt had been cleared up by further information from Dr. Webster. With respect to the second case, which was one of confluent small-pox after vaccination, it really contained nothing remarkable, except, indeed, the fact of re-vaccination having been practiced and followed by local inflammation. This showed convincingly the little value of re-vaccination. He had held this opinion for a long time past. But by far the most important part of the paper was its closing paragraph, the doctrine of Chomel, "that we have no right to expect more from vaccination than from inoculation itself." These few words involved considerations of the highest importance, and it was certain that the attention of the profession and the public must be called to the entire question, and to determine the value of the dictum in question. What, for instance, did we expect from inoculation? By it we gave the small-pox to the person inoculated. We submitted the system to a subtle and violent miasma; the system fortunately took it mildly, passed

through the disease, and thus the matter ended. There might be exceptional cases to this termination, and some might have the ill luck to have small-pox a second time; but he believed few entertained fear on this point. No one above fifty who had been inoculated, he believed, had the slightest fear of small-pox. He had certainly seen cases in which this had occurred, but the chances in favour of it were very small indeed. But did the facts with which we were acquainted warrant us in banishing this fear when vaccination had been resorted to? He believed not; facts did not warrant us in banishing such fear. Up to puberty we might banish it. Cases of small-pox after vaccination up to the fifteenth year were very rare indeed; but after that period vaccinated persons were exposed to the chances of a first attack of small-pox, and were then liable to a second attack of that disease at fifty or sixty years of age. Thus inoculation was to give one attack of small-pox and have done with it; vaccination was to do away with the disease altogether, as it did up to puberty, but after that the patient was liable to the disease. Now, we never heard of modified small-pox up to the year 1817, or about fifteen years after vaccination was first performed. The cases of this disease had gone on increasing since the year 1825, and the results now were, that fifteen hundred patients had been admitted into the Small-Pox Hospital in seven years, with small-pox after vaccination; most of these were modified, but many were of a severe form of the disease. The deaths from small-pox after vaccination might be said to be a little above five per cent.; occasionally in some places, as in Copenhagen, for instance, it was as low as three per cent.; but taking the entire world it would amount to five per cent.

Dr. Mayo believed that, in the times previous to the epidemic to which he had referred, a great number of persons had been inoculated, that a greater number became affected with small-pox after inoculation than after vaccination, and that more of the first class than of the second died. If Dr. Gregory remembered the work to which he (Dr. Mayo) had referred, he begged to inquire into this point.

Dr. Webster said, two observations which had fallen from Dr. Gregory were so important that he must reply to them thus early. The first regarded the authenticity of the cases now brought before the Society, and whether they were genuine small-pox. On this point no doubt could prevail, as they were all attended by medical practitioners, who, as well as the parents, entertained no hesitation respecting the nature of the disease; whilst, in the particular case terminating fatally in India, the statement was made on the authority of the regimental surgeon who attended the patient during his last and fatal attack of variola. Dr. Gregory had likewise stated that small-pox was generally more severe in warm climates than in England. This opinion was quite correct, and fully borne out by the case just related; hence, persons imperfectly vaccinated, and therefore unprotected, ran greater risks in such countries than elsewhere. In proof of this peculiarity, he would beg leave to recall to the recollection of the president an interesting case, which had come under his own immediate observation, in which the patient, although vaccinated when young, fell ill of small-pox during the time he was a student at Guy's Hospital. From this attack the gentleman in question recovered by the president's judicious treatment; but, having subsequently gone to India, he there fell a sacrifice to that complaint. Another illustration of the same kind had also been mentioned to him (Dr. Webster) by Dr. M'Intyre, which merited record. It was that of an officer, likewise serving in the East India Company's service, who became attacked by malignant variola, in the north-western provinces of Bengal, from which he died, although previously properly vaccinated in England. The brother of this individual, then travelling in South America, where small-pox prevailed, although both vaccinated and inoculated when young, got so alarmed and doubtful respecting his immunity from attacks of the above disease, that he was again vaccinated, after hearing of his relative's death in India. Notwithstanding this additional precaution, secondary small-pox, of a virulent sort, manifested itself, from which the patient would have died, according to his medical attendant's opinion, but for the recent vaccination. This and the other cases further illustrated, in a marked manner, the predisposition to receive the

variolous poison more than once by members of certain families, especially in the examples narrated in his (Dr. Webster's) communication, although they were all vaccinated and also had small-pox previously. It was also curious that, in every instance, the males only were affected, whilst the sister of the three brothers just mentioned was not attacked by the malady. In bringing forward the present anomalous cases, it was not his (Dr. Webster's) intention to detract from the great protective benefits of cow-pox, but simply to record an illustration of a most unusual occurrence; and he would add, no one entertained a higher opinion of the benefits following vaccination, when properly performed, than himself, which seemed to be conclusively proved by the fact that, previous to the introduction of inoculation, one-tenth of the total mortality in England was occasioned by small-pox. After inoculation was introduced, it fell to one-fourteenth; but now, when cow-pox has become more generally diffused than some years ago, the deaths by variola are nearly one in eighty-five from all diseases: thus amounting to only one-sixth of the ratio when variolous inoculation was the sole preventive.

Dr. Halley begged to ask Dr. Gregory his opinion on the following point: If the protective power of vaccination lasted only to the fifteenth year, would it be advisable to re-vaccinate persons at that period?

Dr. Gregory had not stated that the protective power of vaccination ceased at fifteen, but that, up to that period, the protection afforded by it was as great as that afforded by inoculation all through life. After fifteen, the system was subjected to another law. With respect to the question, as to whether re-vaccination after fifteen renewed the protection, he might answer that, in his opinion, re-vaccination was a proceeding of very little moment. It satisfied the mind of the public, rather than effected any real good. If it satisfied the mind, why should it not be performed? Let it be so, by all manner of means; but not under the impression that it afforded any protection. Well, then, what was the law which prevailed with respect to the influence of vaccination after fifteen? The constitution, at that period, began to be susceptible, for the first time, to the influence of small-pox, and the susceptibility increased up to middle age and maturity.

We had, however, he thought, means of increasing the protective power of the first vaccination by inoculation after the age of fifteen. The statute-law, in reference to inoculation in this country, prohibited experiments on this point. In France, another law on the subject of inoculation prevailed, not having the same object in view as in this country. Cazenave and others had performed many experiments on this point, which proved that inoculation after fifteen, in persons previously vaccinated, did not produce a vesicular or pustular eruption, but only a papular one, and that this was not contagious. This he knew to be true, and he firmly believed it acted as a protection for life. Several Italian physicians had urgently requested permission from the Austrian government to follow out the experiments of Cazenave; but the authorities refused their sanction to the proceedings, though, in the Austrian dominions, the prohibition was by edict, and not by statute; hence the hardship of non-compliance with the request was greater.

Dr. Copland said his experience went to prove the correctness of Dr. Mayo's statement, respecting the protective power of vaccination until the age of fourteen being more complete than that of inoculation, and that the proportion of persons affected with small-pox was less from the former than the latter. When he commenced practice, he attended a family at Hackney, some of whom had come under his care with small-pox after vaccination: the vaccination had been properly performed, and the cicatrices were distinct and complete. The grown up persons in the family had the disease very badly, and it became more and more modified as the ages of the patients decreased; so that in a boy of eleven years of age it assumed a nearly papular form. From these and other facts which had come to his knowledge at the time, he arrived at the conclusion that vaccination exerted only temporary protection from small-pox, and that it was not, as advanced at the time, a protection for life. This had since been proved to be correct. Dr. Copland then referred to a case of fatal malignant small-pox occurring in a lady who had been vaccinated twenty years before, in

support of the opinion that the protective power of vaccination did not extend beyond puberty.

Dr. Basham thought that sufficient stress had not been laid upon the distinction which he thought ought to be drawn between perfect and imperfect vaccination. Many of the latter he believed were those who were affected with small-pox. The other day he had taken ten patients at random in the Westminster Hospital, and, on carefully examining their arms, had found only four which presented the true fixed and characteristic cicatrix of perfect vaccination: the other six were spurious and bastard scars, and insufficient to determine that vaccination had been properly performed.

Dr. Snow said that he had attended a case of modified small-pox after vaccination in a child three years of age, and had seen other cases of modified small-pox in children—nearly as many, in fact, as he had seen in the adult. He would be glad to know from Dr. Gregory on what data he founded his opinion that vaccination was an almost complete protection up to about the age of fifteen, and a much worse protection in after life. If this data were founded on the experience of the Small-Pox Hospital, he would suggest that it might be open to fallacy; for modified small-pox in children was so mild a disorder, that mothers would not think it necessary to send their children to an hospital on account of it; but when it occurred about the period of puberty, the subjects of it were generally away from their mothers, in situations where it was inconvenient to attend to them, and amongst persons who had a great dread of contagion, and the patients were consequently sent to the Small-Pox Hospital. We very seldom saw small-pox in persons of thirty-five, forty, or forty-five years of age, although the majority of people now living at that period of life depended for their protection on vaccination, and not on inoculation. The great body of practicing medical men, for instance, had been vaccinated—not inoculated; and although they were every now and then called to a case of small-pox, they rarely took the disease. He could not, therefore, concur in the fears of Dr. Copland with respect to future epidemics of small-pox.

Dr. Webster remarked, as allusion had been made to Dr. Thompson's statistics of the mortality in small-pox occurring after vaccination, he might mention, amongst 71 cases of variola met with by that author, in persons previously vaccinated, only three died, or one in 24 examples; whereas, in 205 cases of primary small-pox, 50 died, being one death in every four patients attacked. Indeed, a great proportion of the mortality from variola then occurred, as at present, amongst unprotected persons. For instance, during the last quarter, 69 individuals died at Nilston from small-pox, of whom 50 were not vaccinated. In the eastern division of Wolverhampton, amongst 61 deaths from the same disease, 46 never had undergone vaccination. In Dudley, where 60 persons likewise died from variola, 50 of these never were vaccinated; whilst at Coventry, out of 65 deaths by the same cause, only eight of the entire number were said to have had cow-pox previously. But such occurrences were not surprising, considering the prejudices still prevalent in many parts of the country respecting the utility of cow-pox. Some parents objected to vaccination, because it was giving the disease of an animal to their children; others, because it was flying in the face of Providence to employ such means to prevent the spreading of a natural complaint; whilst some disliked novelty, and preferred inoculation. He (Dr. Webster) must again repeat, notwithstanding vaccination was not invariably a preventive of variola, it nevertheless had conferred immense benefits upon the community, and should be constantly employed; of course, taking due care that genuine cow-pox was always communicated. To prove how much good this modern discovery had accomplished, it was only necessary to look at the large assemblage of smooth faces now in that room, where not a single individual marked by small-pox could be seen. (A laugh.) Again, when walking in the crowded streets of London, it was equally rare to meet instances of the kind, thus showing a very different state of matters from that formerly prevalent.

Dr. Gregory, in reference to Dr. Basham's remark respecting the indications afforded by the appearance of the cicatrix as to the perfect or the imperfect performance of vaccination, said that he thought it had been long ago conclusively

settled that no conclusion whatever could be drawn, with respect to this point, from the appearance of the cicatrix. If a good cicatrix were found, then you might be satisfied that the vaccination had been perfectly performed; but if the cicatrix were imperfect, you had no right to assume that the patient had not been well vaccinated; for in these cases the process of reparation might have been quick; there might have been little inflammation, or there might be other causes to account for the imperfect cicatrix. He had long ago published cases on this point. Dr. Snow had asked him on what evidence he had arrived at the conclusion that vaccination afforded nearly complete protection from small-pox up to the period of puberty? and had inferred that he had derived his evidence mainly from the small-pox hospital; but this was not the fact. He had drawn his conclusions from extensive observations, and from correspondence with persons all over the kingdom. He had never seen modified small-pox in the young, either in private or public practice; neither had he read of it in books, or heard of its occurrence abroad. It was only to be found occurring in the adult. Dr. Webster had expressed his hope that the facts and statements advanced would not shake the confidence of the public in vaccination. He (Dr. Gregory) hoped so, too. Even if vaccination prevented small-pox in only one-half of the cases in which it was performed, it was a great protection; and as it was shown by statistics that about half the population died before the age of fifteen, it afforded to that half, at least, perfect and complete protection.

Mr. Arnott inquired of Dr. Gregory what was the relative mortality from cases of small-pox without, and after, vaccination?

Dr. Gregory replied that, from the year 1844 to 1850, 2854 cases of small-pox had been admitted into the hospital: of these 1500 were after vaccination. The deaths among the entire number had been 579: of these, only 75 were amongst the vaccinated portion. It was a simple matter of calculation to determine the relative mortality.

Dr. Addison inquired of Dr. Gregory what his impression was respecting the identity of small-pox and chicken-pox?

Dr. Marshall Hall rose and said that he was just about to ask Dr. Gregory the same question—viz., his opinion of Dr. Thompson's view of the identity of vaccinia and the modified small-pox? There was another question which he begged to ask Dr. Gregory. It sometimes happened that a child resisted vaccination. Was it then liable to take the small-pox? His own son had been vaccinated fourteen times unavailingly—once by his friend Mr. Barlow, who sat near him. No vaccine vesicle ever formed. His son was sent to Eton, being thirteen years of age; and on coming home, on July the 29th, 1844, for the holidays, went to Brighton. There, on August the 12th, he was observed to be covered with an eruption. Some of the spots at once exhibited the form of distended vesicles, of moderate size, observed in *chicken-pox*. Others of the spots went through the regular course of *horn-pock*, occupying five or six days. One or two on the face left distinct *pits*, the result of sloughing, as seen in *small-pox*. Dr. Hall added, that such a case seemed to demonstrate the insecurity of the patient, when vaccination had failed several times, and to confirm the opinion of Dr. Thompson, that varicella and modified small-pox were the same disease, for in it they occurred simultaneously. Some children seem to possess peculiarities in regard to their susceptibility to the eruptive diseases. The same boy, on returning to Eton, took the scarlatina. There was, however, no rash on the skin; but the sore-throat and the enlarged papillæ of the tongue were so distinctly scarlatinous, that he (Dr. Hall) had had a drawing made, which he still preserved, as admirably representing this form of eruption.

Dr. Gregory, in answer to the question respecting the identity of small-pox and chicken-pox, replied, that the diseases, though bearing some relation to each other, were undoubtedly different and distinct in their nature. In proof of this it had been demonstrated that genuine vaccination had been received before and after the occurrence of chicken-pox. The occurrence of the latter previously made no difference to the development of the former. In addition to this, the two diseases might go on together in the same person. Now, in reference to small-pox, we never saw these modifications. With respect to the case mentioned by Dr. Hall, he had no hesitation in saying that the variolous

miasma had done its worst; and though, like the patients mentioned in the paper of Dr. Webster, Dr. Hall's son might have the ill luck to contract secondary small-pox, the great probability was that he would not.

Dr. A. P. Stewart said that his object in bringing his paper before the Society was to show the influence of vaccination on a case of modified confluent small-pox, in opposition to the case of Dr. Webster, in which death from small-pox had followed vaccination. He had an additional object, however, in his paper, and that was, to draw attention to the remarkable epidemic which had occurred in Devonshire, to mention the strong prejudice which existed in that locality against vaccination, and the bad effects which had resulted from inoculation for variola—a practice which could only be justified by knowing that it afforded a real, effective, and permanent protection from a second attack of small-pox. Dr. Mayo had appealed to the experience of Dr. Thompson on this point, and the results in Devonshire fully bore out that experience; for in that locality the persons inoculated were affected by secondary small-pox in a larger ratio than those who were vaccinated. There was no question that a larger number of these persons were inoculated, and the statistics showed that they were not protected from a second attack of the disease. He regarded the occurrence of 1500 cases of small-pox after vaccination as a very small number indeed, out of a population of two or three millions, and that fact alone showed the great protective power of vaccination. But it was not in hospitals that the protective power was to be seen in its full force: in those institutions the more striking illustrations were not witnessed; but in the poor districts, where day after day the small-pox patients were crowded in confined, close, and unventilated rooms, the medical man in attendance had every opportunity of seeing the vaccinated mixing with the infected persons, and remaining free from the influence of the contagion. No stronger proofs than these of the protective power of vaccination could possibly be adduced. (Hear! hear!)

17. *Observations on the Urine in Pneumonia.*—Dr. Redtenbacher was engaged, in the year 1846, in making a series of experiments on the urine of patients labouring under different acute and chronic diseases, with the view of determining—first, the relation which subsists between the presence of inorganic salts and the specific gravity of the urine—and secondly, whether the increased or diminished proportion of these saline constituents is connected with the formation or retrocession of certain morbid processes. His observations were made in Skoda's wards in the Great General Hospital of Vienna. He found that the amount of inorganic salts was not subject to much variation, and consequently affected the density of the urine in a very trifling degree; but that its density depends upon the inorganic compounds, and especially upon the urea and uric acid. In cases of pneumonia, he has satisfied himself that the amount of chlorides in the urine undergoes variations dependent upon the stage of the disease. Healthy urine, as is well known, deposits a copious precipitate on the addition of nitrate of silver. Redtenbacher asserts that in all the cases of pneumonia (amounting to 80) in which he has applied this test, the faintness or absence of the precipitation has indicated a diminution or absence of chlorides. The precipitate becomes less distinct, from day to day, till resolution commences, when the chlorides again gradually resume their normal proportion. Diminution of the chlorides likewise occurs in typhoid fever, in acute arthritis, and in capillary bronchitis; but is neither a constant phenomenon in these diseases, nor observed at any certain period of the morbid processes. In cases of tubercular infiltration chlorides are found in the urine in normal proportion, but suffer diminution for a short time during each fresh infiltration.

Redtenbacher anticipates the objection as to the value of these observations—that the amount of the chlorides of the urine depends upon the amount of culinary salt used with the food, and that the quantity of the former will be diminished with the supply of the latter—first, by showing that the chlorides are not equally diminished in the course of other diseases, in which restricted diet is rigidly enforced; and secondly, by mentioning that Skoda's cases of pneumonia, on which his observations were made, were, from

beginning to end of the disease, allowed a drink acidulated with muriatic acid. He believes, consequently, that the uniform diminution of chlorides in the urine of pneumonia, is somehow essentially connected with the morbid process.—*Monthly Journ. Med. Sci.*, April, 1851, from *Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien*, Aug. 1850.

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18. *On Exaltation of Hearing in Paralysis of the Facial Nerve.*—The Nos. of the *Gazette Médicale de Paris*, for Feb. 8th and 15th, contain a memoir on this subject by Prof. Landouzy, of Rheims. The following are his conclusions:—

1st. In its pathological relation the exaltation of hearing on the paralyzed side is an almost constant symptom of facial hemiplegia, independent of all cerebral affection.

2d. This exaltation appears at the same time with the hemiplegia, and disappears before it.

3d. It is to be attributed to the paralysis of the internal muscle of the malleus.

4th. It indicates that the nervous lesion is not situated under the first bend of the seventh pair.

5th. It may exist in the absence of the facial hemiplegia.

6th. That it may either coexist with hemiplegia. or be independent of it; it disappears spontaneously, entirely, and in the course of a fortnight or three months.

7th. To decide its existence, it is sometimes necessary to act on the hearing by a loud noise more intense in proportion to the time that has elapsed since the commencement of the affection.

8th. Special treatment will nearly always be useless; where it becomes necessary, it consists in tamponing the ear on the paralyzed side, and even both sides, to diminish the action of sonorous waves, to direct with prudence some cold or slightly astringent douches on the tympanum, and then to gabaurye as required the facial nerve or the membrane of the tympanum. In its pathological relation, this exaltation of hearing, dependent or independent of hemiplegia, appears to confirm the inductions of Dr. Longet on the intermediate nerve, which ought to be considered as a motor tympanic nerve, being to hearing what the ocular motor nerve is to sight.

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19. *On the Constitutional Origin of Erysipelas, and its Treatment.*—Dr. A. J. Walsh has furnished the *Dublin Quarterly Journ.* (Aug. 1850) some remarks on this subject, with cases, which are worthy of consideration.

The following is a summary of his remarks:—

1st. That erysipelas is a constitutional disease, depending solely on a morbid state of the blood; and that the eruption and fever are the means that nature takes to get rid of this poison.

2d. That, for all practical purposes, it is only necessary to divide the disease into idiopathic and traumatic.

3d. That tartar emetic seems to act specifically in erysipelas, by assisting nature in her efforts to throw off the disease.

4th. The best method of administering this medicine is by dissolving one grain in a quart of any bland fluid; the solution to be taken in the twenty-four hours.

5th. That as soon as the tartar emetic has acted sufficiently, sulphate of quina, or some other tonic, is to be administered.

6th. That, if the patient is debilitated, we must administer tonics at the same time that we give the tartar emetic.

7th. That under this treatment the erysipelatous inflammation may spread, but not with the same violence, nor to the same extent, as if the disease were left to itself.

8th. That we shall often require to give aperient medicine during the course of the case, as it is absolutely necessary to keep the bowels free.

9th. That local applications are unnecessary, and often injurious.

10th. That incisions are not necessary, except in the third, or suppurative stage: and if the antimonial treatment be early resorted to, it very rarely occurs that suppuration takes place.

20. *On the Treatment of Pruritis of the Genital, Anal, and Axillary Regions.* By Dr. Tournie.—What is generally designated by the term pruritis of the genital and axillary regions, is a cutaneous affection, under the form of prurigo, lichen, or eczema, of which the itching is nothing more than a symptom, and one of the principal phenomena, although it may sometimes exist without any apparent alteration of the skin, and without any other characters than that of the itch itself.

Without constituting a true disease, the itching is not the less a most inconvenient and disagreeable affection; moreover, it may sometimes determine, in nervous persons, consecutive symptoms of manifest importance. We know that onanism and nymphomania often owe their origin to these violent itchings.

There are few practitioners who have not had occasion to observe some one of these troublesome affections; and who, perhaps, have more than once deplored the inability of the materia medica to cure this intractable malady. Among the remedies in common use are corrosive sublimate, borax, sulphur, camphor, iodine, &c. With the aid of these means cures have been obtained; but none, in Dr. Tournié's experience, produced such constant and successful results as the following, which he employed in nine cases of pruritis of which he has reported the details: 1. An ointment of calomel, in the proportion of from 4 to 6 parts of calomel to 30 of axunge. 2. A powder, composed of four-fifths of starch and one-fifth of camphor, well pulverized and mixed. We may, however, in the ointment, increase the proportion of protochloride of mercury; and, in the powder, the dose of camphor, according to the obstinacy of the disease.

The mode of application is as follows: If the diseased parts are covered with scales or dry crusts, as in eczema, then separation is promoted by cataplasms and emollient baths; having accomplished which, he applies, twice a-day, frictions with the foregoing ointment, and, after the frictions, sprinkles the parts with the mixture of starch and camphor.

The ointment alone is inefficacious; and the camphorated starch, without the assistance of the ointment, allays the itch, but does not affect a cure. Experience has proved this.

The following are the cases of which he has reported the details: 1. Prurigo of the labia majora and vulva—intertrigo. 2. Lichenoid affection of the labia majora—intertrigo. 3. Chronic eczema of the scrotum. 4. Lichen in axillary region. 5. Itching of anus. 6. Ditto, do. Besides these, he notices three other cases of perfect cure by this treatment, two of lichenoid affections of the anus in men, and one of prurigo of the labia majora in a woman. He does not give the details of these last three cases. In one only—viz. that of the fourth case—was it necessary to increase, in a notable manner, the doses of calomel and camphor; in all the other cases, the ordinary formula was sufficient to produce a cure.

When the itching of the anus is caused by the presence of ascarides, the calomel and camphor are less efficacious; but he has recourse in this case to mercurial ointment, and often verified its vermicide effects on this species of worm.

The state of pregnancy seems to neutralize the action of the therapeutic means, the success of which he has recorded above. Thus the itching of the genitals in two pregnant females proved intractable to every kind of treatment. In one only venesection seemed to allay the itchiness a little; but in the second it produced no effect;—in both, the itching disappeared immediately after delivery. In these two cases the itching had commenced during pregnancy; and it existed without giving the vulva any appearance of a lichenoid or pruriginous eruption.

Dr. Maslieurat-Lagémard has published, in the 12th No. of the "*Gazette Médicale*," for 1848, page 204, a very curious and remarkable account of a general itching supervening, without eruption, in the course of eight pregnancies, in one of his patients. This did not commence till after the sixth month, and no treatment appeared to alleviate the violent itchings, which, during the eight pregnancies, resulted six times in premature deliveries.

In Dr. T.'s hands, the combination of the calomel ointment with the powder

of camphorated starch, in the treatment of itching of the hemorrhoidal region, has given results which no other treatment has ever obtained in so constant a manner.

Every practitioner who has been consulted for these affections has been obliged to direct himself to formulæ of great variety, before hitting on a successful expedient. In illustration of this, it is sufficient to relate the summary of five observations published by Dr. Ruan, in "Hufeland's Journal."

Of these five cases, two were treated without any success by purgatives, diuretics, opium in large doses, Goulard's extract, and solution of borate of soda; intractable to all these means, they were cured by the balsam of copaiva.

In a third case, the copaiva, which had succeeded in the two first, was inefficacious; whilst the borax, which had failed in the others, caused the itching to disappear in this case.

A fourth case resisted the divers means employed for the first three and gave way to the administration of the subcarbonate of soda in small and repeated doses.

The fifth case resisted every treatment.

[Dr. Tournié takes no notice of hydrocyanic acid, which, in the proportion of a drachm to eight ounces of almond emulsion, we have found frequently to give great relief. In *prurigo ani* and *pudendi*, we have more frequently succeeded in effecting a cure with a weak solution of corrosive sublimate (one grain to eight ounces) than with any other application. The state of the digestive function and urinary secretion should always be attended to, whatever be the local treatment.]—*Monthly Journ. Med. Sci.*, April, 1851, from *L'Union Médicale*, 16th Jan.

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21. *Creasote in Diarrhœa.*—Mr. Kesteven extols (*London Med. Gaz.*, Feb. 1851) the efficacy of creasote in the cure of diarrhœa. The form in which he used it was: ℞.—Creasoti ♏j to ♏v; Spt. ammon. arom. ♏xv to ʒj; Aq. ʒj to ʒiss. Where pain has been severe, Tinct. camph. co. has been added.

In no single case, Mr. K. says, has creasote failed to be of signal benefit; in most cases one single dose was sufficient to arrest the course of the disease; in very few instances has it been requisite to administer more than the second dose.

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22. *Polypus of the Larynx.*—In our preceding No. will be found an elaborate review of the excellent work of Dr. Ehrmann on this affection. The following case, recently recorded by Dr. Pauli (*Medicinisches Correspondenz-Blatt*), is interesting in connection with this subject.

A tailor, 36 years of age, affected for two years with a dry cough, accompanied with very marked emaciation, and complaining continually of a foreign body in his throat, was supposed to be affected with phthisis. One morning, in a violent paroxysm of coughing, he threw up a vascular polypus, the length of half a finger, and from this moment he slowly began to recover.—*Gaz. Méd. de Paris*, Jan. 4, 1851.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

23. *Diffused Femoral Aneurism—Ligature of the Internal Iliac Artery—Recovery.*—Mr. G. Saunders, Assist. Surg. 47th Reg., has recorded, in the *Medical Times* (March 29th, 1851), the case of a soldier, nineteen years of age, admitted into hospital Aug. 8th, 1849, for a painful swelling in the left groin, which rather suddenly appeared five days previously, when at light infantry drill. The swelling was diffused and extended beneath Poupart's ligament; rather hard, immovable, having a central pointing of a dark blue appearance, and much surrounding inflammation of the integuments, but no pulsation; leeches and

cold lotions were applied to the part; purgatives, antimonials, confinement to bed, and spoon diet ordered. By these means the inflammatory state of the parts was much reduced. The next day the swelling was more pointed, with indistinct fluctuation. In a few days the integuments became thin and dark in colour; a small slough separated, and there was considerable oozing of arterial blood; pulsation in the tumour was now very audible through the stethoscope. The bleeding was arrested by pressure.

On the 21st the swelling became more diffused; base hard; much hemorrhage; great pain on pressure above Poupart's ligament; no pulsation in the artery immediately below the swelling, or in the corresponding popliteal space, with a diminution of the natural temperature of the limb.

On the following morning Mr. Battersby tied the external iliac artery of the left side about three-fourths of an inch above Poupart's ligament. The integuments were in the first place divided, to nearly four inches in extent, along the upper margin of Poupart's ligament, various layers having been cut through and much cellular tissue displaced, and some fat removed, directly beneath which the artery was exposed. The ligature was passed from the inner side of the artery without the least difficulty, and the vessel properly secured. Immediately this was done, pulsation in the tumour ceased; the concentric coagula forming the aneurismal sac subsequently sloughed away; the ligature separated on the twenty-first day after the operation, and on the 18th of October the man was discharged quite well.

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24. *Femoral Aneurism—Cure in twenty-four hours.*—Staff-Surgeon G. R. Dartnell records, in the *Medical Times* (Feb. 8th, 1851), a very interesting case of femoral aneurism in a soldier, aged 35, who had always enjoyed good health. The patient was admitted into the Regimental Hospital, Chatham, on the 16th May, complaining of pain in the lumbar region and left side below the ribs, occasioned, as he thought, by exposure to cold. On the 18th, the pain of back and side was entirely removed, but he directed attention to a pulsating tumour, about the size of a pullet's egg, on the anterior aspect of the left thigh, occupying a portion of the triangular space, within two inches of Poupart's ligament. He stated that he had only observed the swelling that morning, and that he was not aware of having made any violent exertion lately; but that for some time previously he had experienced a sensation of numbness and slight pain in the leg and instep.

The tumour in the groin is now rather larger than the longitudinal section of a hen's egg. It is pulsating very powerfully with a distinct bruit; is firm and elastic to the feel, but can be partially emptied of its contents by the pressure of the hand, and the pulsation entirely ceases under firm compression of the inguinal artery by the fingers. The circumference of the diseased thigh, over the tumour, is 19½ inches, that of the sound one 19 inches. He has some numbness in the leg, extending from the knee to the foot. Temperature of the limb natural; pulse at the wrist 80. Considerable diffuse pulsation is observable over the abdominal aorta, a little below and to the right of the scrobiculus cordis; the stethoscope gives, at this point, a very distinct bruit; a faint rasping sound at the site of the mitral valve, and a double bellows-murmur at the apex of the heart; general health good; bowels regular. Rest in the recumbent posture; low diet.

31st, 10 A. M.—No change.

3 P. M.—Aneurismal compressor applied, the pad of the instrument being placed over the external iliac artery, as it passes over the pubis, two inches above the upper edge of the tumour. The artery is under the complete control of the instrument, but its power is so regulated that the current of blood is only partially checked, a feeble pulsation being still perceptible in the tumour.

6 P. M.—Pressure of the pad rather irksome; still slight pulsation in the tumour; temperature of the limb reduced, with a numbness about the knee. Pad slightly shifted; pressure increased by a few turns of the screws.

9 P. M.—No pulsation in the swelling; pain from pressure of the pad a good deal complained of; but patient having been made fully aware of the nature of his complaint, and the principle of the treatment, bears the pain without the

least fretting or restlessness. Numbness and coldness of the limb increased; pressure slackened by a few backward turns of the screws, and the blood permitted again to pass feebly through the aneurismal sac. Frictions to the limb, and bottles of hot water to the foot. Some thirst; no arterial excitement; pulse 80.

June 1, 6 A. M.—Has had no sleep, and still complains of the pressure of the instrument. Tumour still pulsating feebly, but begins to have a firmer feel; numbness rather less, and temperature of the limb returning; no swelling or discoloration from obstruction of the venous circulation. Pad lifted from its position, the artery being commanded by the fingers a little higher up; integuments under the part very slightly reddened; parts cooled and sponged with cold water; instrument re-applied in quarter of an hour.

10 A. M.—Temperature of the limb nearly natural; very little uneasiness from the compressor since the morning visit; patient tranquil and in good spirits.

1 P. M.—Feeble pulsation still perceptible, but the tumour loses more of its elastic feel, and it is evident that the formation of fibrine is going on; limb of natural warmth; numbness less; pad screwed down so as to stop the pulsation completely.

3 P. M.—No pulsation since last report; the aneurismal swelling has entirely lost its elasticity, and appears to be completely solidified; very little uneasiness from the instrument, which is left undisturbed. Twenty-four hours since its first application.

8 P. M.—Pressure entirely removed by lifting the spring; tumour still without the slightest pulsation, and as solid as a stone; compressor re-applied after a few minutes, but with diminished power.

June 2, 6 A. M.—Patient has had some sleep, and has no discomfort or inconvenience from the truss; tumour solid, contracted, and pulseless; temperature of the whole limb natural; sense of numbness greatly diminished; complains of a little pain in the fore part of the leg, and slight thirst.

8 P. M.—Remains as at the morning visit nearly, but feels more comfortable; continue the instrument as a security.

June 3, 10 A. M., 67 hours.—Has had a good night's sleep; tumour further reduced in size; temperature natural; posterior tibial artery felt beating feebly. The truss removed altogether; integuments under the pad scarcely reddened; patient quite comfortable, and general circulation tranquil; pulse 75; tongue clean; no thirst, bowels confined. ℞.—Ol. ricini ℥j. Sponge the limb with cold water.

8 P. M.—Bowels once moved by the oil; patient continues well and free from all complaint; tumour solid, and somewhat flattened in shape.

June 4, 10 A. M.—Patient slept well; has a little pain in the leg and instep, and is weak from confinement to bed and reduced diet; in other respects quite well. The instrument has not been re-applied.

Oct. 25th.—Nothing further to detail from the date of last report; the absorption of the tumour has been slow but progressive, and scarcely a vestige of it now remains. The patient is in excellent health, and has apparently quite lost the threatening symptoms of general arterial disease he had on his admission into hospital; he still, however, complains of a very slight sense of numbness about the inside of the knee, and a trifling degree of weakness of the limb; but these symptoms are gradually wearing away. He was discharged on the 26th Sept. for two months' sick furlough, previous to rejoining his regiment, it being thought inexpedient to subject him too soon to the very severe and fatiguing duties of drill.

At the risk of being thought tedious, I have given the notes of the foregoing case in detail, conceiving that it may be thought interesting to trace the progress of the cure. The visits, it will be observed, were made at short intervals; and I am of opinion that, in the treatment of aneurism by compression, it is of the greatest importance that the surgeon who undertakes the care of the case should be unremitting in his attentions to the patient. Much of the success depends upon his watchfulness, not only in regulating with nicety the stream of blood

through the sac, and in watching for the favourable moment when it arrives to stop it altogether; but in alleviating, as far as possible, the sufferings of the patient from the continued pressure of the pad, by such delicate and careful manipulations, or shiftings of the instrument, as it is practicable to make. This is especially requisite in cases where a second or relieving clamp cannot be applied.

The critical moment, it appears to me, when the current of blood may be stopped altogether with effect, is when the deposit of fibrine has begun to take place, as evidenced by the loss of elasticity, and increasing firmness of the tumour: and when the collateral circulation has become fairly established, as indicated by the restoration of the natural temperature of the limb, though the stream may perhaps very judiciously be suspended now and then, for a short interval of two or three hours at an earlier period, and then be permitted to flow again as before. These occasional checks throw the impetus of the arterial current with new and greater force upon the anastomosing branches, thus tending to their enlargement.

The result of the above case is interesting, from the rapidity of the cure, as well as its apparent completeness under what seemed to be adverse and discouraging circumstances: and it is satisfactory to remark that no local injury whatever was sustained from the instrument, although the pressure was continuous, there having been no means of applying a second elsewhere in the line of the artery, as recommended by Mr. Bellingham, and practiced with so much relief in cases of popliteal aneurism. The integuments under the pad were hardly reddened, and the sufferings of the patient after the first few hours were comparatively trifling.

The instrument used in this case, as a *Presse Artère*, was a very simple modification of an improved hernial truss invented by myself. The truss selected was a double one, with a strong spring, the extremity of which, on the left side, was slightly altered in its curve, so as to bring the pad directly over the external iliac artery, as it emerged from beneath Poupart's ligament. For the ordinary wooden pad of this truss were substituted two oval plates of steel, the upper one attached firmly to the end of the spring; the lower connected with the first by four long screws, so managed as to increase or diminish the space between the plates, thus enabling the surgeon to gain a small amount of additional power. To the lower plate was fixed a rounded piece of cork, covered with a cap of chamois leather, and modelled with a gentle ridge or elevation along the centre, which was invented to prevent undue pressure on the vein or nerve on either side, while the ridge itself pressed directly upon the artery. The perineal strap of a common truss was attached, which, when buttoned to the upper plate, augmented the resisting power of the spring, and, consequently, the additional force of the screws, which would otherwise be divided equally between the spring and the part compressed.

I am far from supposing the instrument above described to be perfect, but, in the absence of a more legitimate one, it was the readiest contrivance I could command, and it answered the purpose in this case extremely well. I have since learned that a somewhat similar apparatus was made use of, several years ago, by the late Mr. Todd, of Dublin, in his attempt—the first, I believe, that was ever made—at the cure of a case of femoral aneurism by compression. An account of that very interesting case, and of the instrument, will be found in the third volume of the Dublin Hospital Reports.

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25. *Ligature of the External Iliac Artery.*—Dr. Charles Halpin communicated to the Surgical Society of Ireland a case in which he applied a ligature to the external iliac artery to arrest hemorrhage from the femoral, produced by the latter artery being opened by the ulceration of a bubo in the right groin. The subject of it was a soldier aged 21. Hemorrhage occurred on the 11th Sept., and again on the 12th, and on the afternoon of the latter the ligature was applied; on the 14th, 15th, 16th, and 19th Sept., venous hemorrhage occurred from the site of the bubo; and on the 20th, arterial hemorrhage; and on the evening of the last-named day, the patient expired.

A post-mortem examination was made on the 21st day of September, nineteen hours after death. Assisted by Dr. Roe and Mr. Brice, a most minute examination was made of the parts connected with the disease and the site of the operation. The peritoneum, which had not been wounded in the operation, was found adherent to the cœcum; it was easily torn in separating it from this part. The artery was exposed from the bifurcation of the aorta to the middle of the thigh. The ligature applied on the 12th instant to the external iliac was about two inches above Poupart's ligament, and was very nearly cast off, being retained by some portion of the external coat only; the artery had not been disturbed in the operation to a greater extent than permitted the needle to pass under and between it and the vein.

It was evident that the hemorrhage immediately preceding death had come from this portion of the artery, notwithstanding its being filled from the ligature to the giving off the internal iliac artery with a very firm coagulum.

About two inches below Poupart's ligament, there was an *aneurism* of the femoral artery, capable of containing a small chestnut. The origin of the profunda femoris was implicated in this aneurism.

The femoral vein was destroyed for about three inches of its course, below Poupart's ligament.

The ulceration connected with the bubo, reaching the aneurismal sac, eroding its coats, originated the hemorrhage on the 10th instant, which terminated in the death of the patient on the 20th; but I am strongly of opinion, at the same time, that the blood which came away on the 14th, 15th, and 16th instants, and which had all the character of venous blood, descended through the iliac vein, and escaped by the femoral vein, which had been destroyed by ulceration. I am not aware how far such a source of hemorrhage has been observed or suspected before, but it strikes me that the possibility of such an occurrence is worthy of the attention of the profession.—*Dublin Medical Press*, May 14th, 1851.

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26. *Hernia—Operation without opening the Sac.*—The subject of hernia is a most important one to the practical surgeon; and there is no class of cases which requires so much study and investigation. The affection is one which is so common, and so likely to be brought under his notice at any period, in its most difficult and dangerous aspects, that he is bound to make himself acquainted with its nature and treatment, and with the various circumstances which so frequently obtain, to modify both. It at first sight appears somewhat surprising that there should be so much difficulty connected with an apparently simple subject, and that there should have arisen so much controversy upon the most effectual modes of combating the dangers which are induced when a patient is labouring under a strangulated hernia: for upon no one subject, perhaps, has so much been written as upon this. The writings of Cooper, Pott, and Lawrence, with many others, bear testimony to the laborious investigation which these eminent men have been engaged in to ascertain the precise nature of the affection, and to simplify the treatment of it both by operation and other means. This surprise, however, ceases when we come to see the disease at all on a large scale; for then it is we find that there are no two cases exactly alike; and that, in one case after another, circumstances obtain or arise which the surgeon has not noticed before, or has altogether forgotten; and he accordingly finds that he is compelled to modify his mode of operation and his subsequent plan of treatment, according as the singularity or gravity of these circumstances is met with. Thus it is that he who wishes to make himself well acquainted with the pathology of hernia, and with all the circumstances which are constantly interfering to modify its treatment, should not miss a single opportunity which may present itself of observing every case which may fall in his way. It may be stated as a great probability that, with every fresh case, something new will be learned. Hence we consider a faithful and accurate report of all individual cases of hernia to be most especially useful. More of course will be learned by the actual ocular observation of such cases; nevertheless, an attentive observer will add to his store of knowledge by reading the records of such when he cannot see them for himself.

The point which has been of late, and is now mostly under discussion, is as to the propriety and expediency of performing the operation for strangulated hernia without laying open the sac: other matters connected with the treatment of the affection—such as operating at an early period after strangulation, not using too prolonged taxis, and refraining from the employment of powerful aperients too early after the stricture upon the gut has been relieved—have been satisfactorily settled in the minds of all judicious surgeons; but the one point under consideration is that just mentioned, and it is likely to agitate the minds of practitioners for some time yet; at all events, until a larger mass of well-recorded cases of hernia treated by the two separate methods of operating with and without opening the peritoneal cavity, shall be brought home to the profession. It must be confessed by all those who have paid any particular attention to this very important subject, that the data are not yet sufficient to justify the surgeon in coming to anything like a correct conclusion as to which is the safest and best mode of operating generally; nevertheless, the researches of Key, Luke, Gay, and Hancock have contributed much to enlighten the profession on this matter, and the minds of surgeons are thus imbued with the necessity of considering every case of hernia with extreme care before they determine upon the manner in which such and such a case should be treated. The feeling is gaining ground that the operation without opening the sac is applicable to very many cases of strangulated hernia, where a few years ago the peritoneum would have been opened without the least consideration, and supposedly as a matter of necessity; that also the danger of the proceeding is much lessened if so delicate and easily inflamed a structure as the peritoneum is not meddled with. Experience has already amply shown the truth of this; but, on the other hand, it cannot be denied that there are many good surgeons who look upon this mode of operating not only with great suspicion, but who consider it to be both unsatisfactory and more dangerous than when the sac is opened, its contents brought into view, and the condition of the parts well ascertained before they are returned into the abdomen. Those who are advocates of the former method urge as arguments in its favour the great danger of peritonitis where the membrane is cut into and the intestine itself is rudely handled—in fact, the circumstances that in almost every case which is fatal after the ordinary operation, a greater or less amount of inflammation of the peritoneum and its consequences is found: and hence the immunity which obtains when a simple incision is made through the overlying textures. Those who oppose this plan urge—and justly too—that it is not applicable to a great number of cases, and that there must always be an extreme difficulty in selecting those to which it really is applicable: moreover, that the peritoneum is not so liable to be inflamed by a simple incision into it as is imagined by some, and that it is impossible to tell at the time of operation whether or not the stricture be fairly relieved, and whether the intestine itself be in a fit state or not to be returned into the belly. Such, then, is the position which this question at present assumes, and is likely to maintain, until the experience of a large number of cases has been fully brought before the profession. It therefore, we conceive, becomes the duty of every one who has the opportunity of bringing forward facts which may throw light upon this subject, to do so; and we shall make it a point of recording every case of hernia in the reports which it is our duty from time to time to make from among those which are treated in this hospital.

Before proceeding to relate two instances of strangulated hernia where the operation has been successfully performed without opening the sac, we will allude to the report of a case which we inserted from this hospital a few weeks ago. In this instance it will be remembered that the patient was an old man, in whom strangulation of the intestine had existed for less than 24 hours, and everything appeared to be favourable for the operation without opening the sac; and yet, on post-mortem examination, a considerable portion of intestine was found to be in a condition quite unfit to be returned, although the stricture had been effectually relieved by cutting it outside the peritoneum. We at that time made the remark that this very case illustrated the difficulty which must necessarily exist in arriving at a correct conclusion as to the state of the parts inside, the hernial sac, and was *per se* an instance to show the danger and inexpediency

of returning a portion of intestine which has been constricted, even for a short period, without first ascertaining its condition. We have now, on the contrary, to relate two instances where the same kind of operation has admirably succeeded, and which thereby tell as arguments in favour of operating without opening the sac, if possible.

Mary Ross, aged 48, married, was admitted into King's College Hospital with a strangulated femoral hernia, on Tuesday, November 26th. She stated that on Monday evening, at 8 P. M., whilst sitting before the fire, she was suddenly seized with a severe pain in the lower part of her belly. She at once sent for a medical man, who gave her an emetic which acted violently, and increased the pain under which she was suffering. About 11 o'clock of the morning she was admitted she first herself noticed a tumour in the right groin, which was very tender to the touch. She had never observed a swelling there before. At 2 P. M. she was sent into the hospital, *no attempt whatever having been made to return the hernia before admission.* Mr. Fergusson pronounced the tumour to be a femoral hernia: the patient was at once placed under the influence of chloroform, and a careful attempt was made to return the swelling by the taxis; but Mr. Fergusson, finding that it did not yield in any way, determined to operate without further delay. Making a very short incision over the hernial tumour, he dissected through the separate tissues, and carried the knife inwards, and divided Gimbernat's ligament, outside the sac: the contents were at once returned into the belly; little blood was lost; the edges of the wound were united by sutures; a compress and bandage were applied.

27th.—This patient suffers no pain; has slept well the preceding night, but the bowels have not been opened since the operation.

28th.—Bowels have been opened by means of an enema this morning. The patient feels comfortable.

Dec. 3d.—Stitches have been taken out of the wound, and this is dressed with adhesive straps.

Discharged on the 7th.

Lydia Boothby, æt. forty-six, married, and mother of eleven children, has had a crural rupture on the right side for the last six years, and has worn a truss for the last twelve months. On the night of December 23d, at ten, she was seized with vomiting and a dragging pain in the stomach, whereupon she attempted to return the tumour with the help of her husband, but found she was unable to do so. These efforts at reduction were continued all night; and, as they were unsuccessful, she applied and was admitted into the hospital. Next day, Dec. 24, she had vomited fæcal matter before she came in. She had no vomiting when admitted, but complained of a severe dragging pain at the stomach, and shooting pain over the abdomen. There was a tumour, the size of an egg, in the left groin, turning up over Poupart's ligament: it was hard, and felt nodulated at the upper part, but was smooth and fluctuated at the lower. Mr. Fergusson saw the patient, and, finding that he was unable to return the hernia, proceeded to the operation. He first made a very limited incision just over the neck of the tumour, and divided the separate tissues over the sac; he then passed the knife upwards and inwards, and cut Gimbernat's ligament, and was then enabled to pass the contents of the sac into the belly without opening the sac. It was necessary, however, after dividing the ligament, to cut some fibres between that tissue and the sac; the rupture after this was returned with the greatest facility.

On the same evening this patient found herself much relieved; there was no pain, no tenderness nor sickness.

On the next day her bowels were freely opened, and the only thing she complained of was a little fever, which required some saline medicine. The wound soon put on a healthy appearance, and she rapidly recovered.

Both these cases are interesting, inasmuch as the same operation was put in force in either, and that, too, with the greatest success, although the two cases were not by any means alike. The comparatively simple and harmless operation without opening the sac was performed, and both patients recovered without a single bad symptom. Both cases illustrate the fact that there are certain instances of strangulated hernia to which this peculiar operation is decidedly

applicable; and they teach us what are the circumstances which will lead the surgeon to judge that he is dealing with a fit case for such a mode of procedure. In the first patient, the conditions were just those which are considered to be the most favourable for attempting the operation without cutting into the peritoneum. The woman had never suffered from hernia: in fact, it was quite recent descent of bowel; the parts had not been suffered to remain long down, and, moreover, it was a femoral hernia, which is probably that kind of hernia in which the operation of not opening the sac is most likely to succeed frequently. The anticipations of the surgeon that in such a case the operation might be completed without difficulty were verified. In the second case, the same conditions did not obtain; for here the hernia was not recent, but was of six years' standing, and for twelve months the patient had worn a truss; and it might with propriety be expected that some changes would have been brought about in the sac which would oppose a successful attempt at reducing the hernia without an exposure of the cavity. Nevertheless, there was an equal amount of facility in either case in completing the operation. There was also this difference in the two cases—in the one it has been seen that no attempt whatever had been made to return the hernia, either by the patient herself, or by a medical practitioner; in the second instance, both forcible and prolonged attempts were made by the patient and her husband to push the tumour back. The circumstances in each were therefore different, and certainly much more unfavourable in the latter case. Still this rude handling of the parts had not appeared to produce any mischief. A great point in the success of both cases consisted, doubtlessly, in early recourse to operation—a measure which should always be adopted whenever it is considered that the employment of the knife is necessary. It must not, however, be considered that in all cases like these just mentioned, and more especially the first operation of not opening the sac, will invariably succeed or can be accomplished; nor is it to be supposed that the intestine must necessarily be in a fit condition to be returned because strangulation has existed only for a few hours, and because those symptoms which not unfrequently indicate a gangrenous condition of the intestine are not at all perceptible. The case of the man first alluded to shows the impossibility of deciding this question; for although in this instance strangulation had not existed for twenty-four hours, death rapidly ensued after operation, and the intestine was found in a very disorganized condition; and it is often quite impossible to judge, from the absence of symptoms, as to the comparatively healthy state of the contents of a hernial sac. A few days ago we were present at an operation in a remarkable case of strangulated femoral hernia in a very aged person, where there were not the slightest symptoms to indicate that the intestine was in anything but a healthy condition. The operation without opening the sac was performed. The stricture was fully relieved, but the patient died; and on post-mortem examination a considerable portion of intestine was found to be in a semi-gangrenous condition. This uncertainty as to the state of the intestine must then be looked upon as one of the great impediments to, and difficulties in connection with, the adoption of this particular plan of operating. Still it must be hoped that a careful observance of signs and symptoms, and the experience of a greater number of cases than have hitherto been brought forward, may be able to enlighten the surgeon on this serious point, and enable him to avoid the dangers which must necessarily arise if he adopts too hastily or too generally either plan of operating.

Mr. Fergusson has lately adopted a mode of operating by a very small external incision through the skin, just over the neck of the tumour. It was formerly his custom to recommend and practice much freer incisions, of various shapes, over the surface of the tumour; but he now proceeds in a manner somewhat like that recommended by Mr. Gay in his very beautiful work on Femoral Hernia: by means of this incision he is enabled to get easily at the Gimbernat's ligament, which it is generally necessary to divide. Should, however, a larger incision be found necessary, it is very easy to extend it over the tumour. Mr. Gay practices his incision, which is even more limited than that of Mr. Fergusson, by the side of the neck of the hernia, and does not interfere with the tumour at all if he can possibly effect his object without it. Mr. Fergusson, in both the

cases narrated, made a small cut just over the neck of the hernia, but interfered little with the main portion of it. The advantage is that so small a wound very soon heals up.—*London Med. Gaz.*, Jan. 1851.

27. *Puncture Wound of the Abdomen—Recovery.*—Dr. H. C. Field communicated to the Surgical Society of Ireland the following remarkable case of puncture wound of the abdomen, accompanied with an opening into the intestinal canal, and great hemorrhage, in which the patient recovered:—

On the 22d of a severe November evening, I was requested, in a very hurried manner, to visit a gentleman who, I was told, had, while sitting at dinner, some disagreement with a member of his family, and, in a fit of irritation, exclaimed that he was tired of life, and had immediately inflicted some serious injury on himself. On entering his room, I perceived that it bore a most appalling appearance: the floor was covered with blood, and my patient was extended on a sofa in a remote corner of it, apparently lifeless. I could not feel any pulse. I immediately called for some brandy, which I obliged him, with great difficulty, to swallow some of. I soon perceived that blood was flowing in considerable quantity from a wound in his *abdomen*, which was situated to the left side of, and near to, the umbilicus. I soon learned that the wound had been inflicted by a large *carving knife*, which, from the *stained* appearance it presented, and from the account I received, as well as from the nature of the wound, I judged had passed into the cavity to the distance of *five inches*, in a direction obliquely backwards, downwards, and to the left side. The blood, which was of a dark colour, flowed freely in *one continued stream*, and hemorrhage was so excessive as to excite an apprehension of immediate dissolution. However, having failed to suppress the hemorrhage by firm compress and bandage, and convinced that a few minutes more of such bleeding must end in death, I introduced to the bottom of the wound a *dossil of lint*, the end being kept outside, and applied over it a graduated compress and a broad bandage firmly. This succeeded in arresting the further flow of blood, and a cordial draught, with forty drops of laudanum, was then administered. A feeble tremulous pulse at the wrist could now be felt, but he appeared in a sort of faint. He was bathed in a cold sweat, his extremities lay still and motionless, he vomited at intervals, and his urine and bloody feces passed unconscious to him, and his respiration was slow and laboured. In this state, almost bordering on death, he remained for seven hours. About this time the vital power first showed a disposition to reaction. He expressed, in a few broken accents, the general uneasiness felt, and complained of pain and numbness in the lower extremities, particularly in that of the left side: this, together with a peculiar restlessness, disturbed him during the remainder of the night, which was passed without any sleep, notwithstanding the anodyne he had taken.

23d. A medical attendant remained with him during the night; there was no recurrence of hemorrhage; he still appeared in a state of extreme debility, and felt great nausea, which occasionally increased to hiccough and vomiting: he also complained of numbness and pain extending down the left limb to the foot; there was slight tenderness about the wound on pressure; pulse 120, feeble, and irregular. With a view to relieve the state of the stomach, as well as to allay the general irritability, and ensure perfect rest, I directed the saline effervescing mixture every four hours, with fifteen drops of laudanum; also fomentations to the abdomen. Evening: He still complained of pain and numbness in the thigh and leg; the tenderness of the abdomen had increased; there was thirst; pulse 110 and feeble; tongue white and furred; skin hot and dry; stomach relieved. Ordered to continue the draughts at longer intervals, also the use of ice, and the fomentations every four hours.

24th. He had some quiet and refreshing sleep during the night, and felt himself relieved; his pulse was 90; skin cool; no sickness of stomach; has had two stools, each containing a large quantity of dark clotted *blood;* pain and numbness in the left limb not so troublesome; tenderness of the abdomen on pressure continued. Ordered the fomentations to be repeated.

25th. He had several evacuations, each containing a quantity of clotted blood;

fever much less; pulse 90; tongue foul; pain and numbness in the extremity still distressed him; there was little or no pain about the wound; the dressings came away, when a quantity of *feculent* matter, mixed with blood and some pus, was discharged.

26th. Has had some refreshing sleep, and was much better this morning.

27th. Continued to improve; the evacuations were free from blood; he now complained of occasional starting in the left limb, in addition to the pain and numbness, which still continued, though in a less degree; the wound discharged healthy pus unmixed with feculent matter; he was free from fever.

I think it unnecessary to delay the Society by detailing the daily reports: he continued to improve daily: the wound gradually healed. The peculiar sensations of numbness, pain, starting, and tingling in the left leg and thigh, however, continued, and were occasionally very distressing, although on the whole less severe and frequent in their attacks.

On the 8th of December he attempted to stand, but the left leg was so weak as to yield beneath his weight.

January 2d. Since the last report, his health and strength considerably improved; for some time the left extremity was nearly paralytic, though frequently attacked with paroxysms of pain and numbness, which latter he described as more troublesome and distressing than the former. These paroxysms, however, were so slight and so few that every hope was entertained of his perfect recovery at no very distant period.

I cannot close this statement without directing the attention of the Society particularly to some of the circumstances of this case, as I conceive they are calculated to excite our astonishment, as well as our admiration, at the extraordinary resources of nature, whereby she is enabled, under the most unfortunate circumstances, to preserve the life of a human being. In this case we have evidence not only of the peritoneum, but also of the intestinal canal, being opened.

I should presume, from the feculent quality of the discharge, that some part of the colon was injured. What blood-vessel was wounded cannot with certainty be affirmed, but most probably some large branch of the vena portæ, such as the inferior mesenteric, or one of the colic veins. I conceive there can be no doubt, from the peculiar sensations complained of in the lower extremities, that some branches of the lumbar plexus of nerves must have been divided, or otherwise injured, at the time of the accident. It appears a strange anomaly in the history of wounds of the abdomen, that so little peritoneal inflammation was excited in this case, notwithstanding the effusion of blood and feculent matter. May we not in some degree account for the fortunate absence of this, so common a result in general, either by the copious hemorrhage which immediately followed, reducing the system to so low a condition as to retard the reaction in the circulating organs, and so oppose the attack of local inflammation or general fever, or a coagulum of blood may have so formed around the wounded vessel as that further bleeding and effusion into the cavity were restrained until the adhesive inflammation set in, by means of which a permanent recovery was effected in a surprisingly short time, for we find him in less than a fortnight free from every unpleasant symptom, excepting the pain and numbness in the lower extremity, which may be referred to the injury of some of the nervous filaments of the limb? I have always entertained the belief that we are never too old to learn. I know, although the case recovered, that there was unavoidable error in some of the practice, and I hope to hear some remarks upon it from some of the experienced surgeons I have the honour to see around me.—*Dublin Medical Press*, April 16, 1851.

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28. *Tracheotomy in a Child thirteen months old successfully performed for Œdema of Glottis.*—T. L. Whistler communicated to the Surgical Society of Ireland (Feb. 8) an interesting case of œdema of glottis in a child only thirteen months old, caused by the taking of boiling water into the mouth, in which antiphlogistic measures having failed to afford relief, tracheotomy was successfully performed.

The subject of it was an unusually fine boy, brought to Mr. W. at eleven

o'clock on the morning of the 13th Jan., having, as stated by his mother, swallowed boiling water from a kettle removed to the side of the fire-place, on a level with the child when standing, at a moment when left alone. It was crying violently, and evidently suffering much pain; the face was greatly flushed, and the pulse much accelerated; there was, however, no vesication about the mouth, and but slight tumefaction observable on the fauces. I directed four leeches to the throat, and after an emetic (which I subsequently found was not administered), a grain of calomel and quarter of a grain of hippo to be given every second hour. I again saw the child at three o'clock; the leeches had freely bled, and the calomel was punctually dropped on the tongue; the breathing was rapid, but not oppressed; the usual febrile symptoms intense. When I again visited the child at eight o'clock in the evening, every alarming symptom had set in—difficult croupy respiration, pale bloated face, cold skin, pulse scarcely to be felt, with inclination to stupor. The child was dying, and no prospect of saving life was left but to open the trachea—an opinion which was at once concurred in by Dr. Darby, who kindly and effectively gave me his assistance.

After the first incision, the convulsive struggles of the child, the venous hemorrhage, the rapid working of the trachea, and the insufficient light procured in the cabin, rendered the remaining steps of the operation distressing, and more than usually tedious. Not being at the moment supplied with the double hook, I laid hold of the trachea with a common tenaculum, which, being divided, the air forcibly rushed out, followed by a discharge of blood and mucus. From the situation of the child, and anxious to stop the hemorrhage as quickly as possible, the canula was introduced sideways without removing any portion of the trachea. In a few seconds the child breathed freely through the wound, occasionally forcing up large collections of bloody mucus, consciousness returned, and wine and water was shortly afterwards swallowed. The examination of the fauces with the finger conveyed the impression as of a large cherry in the situation of the epiglottis. Directions were left with the mother to remove the mucus from the canula with a feather and by suction, and to continue the powders of mercury and chalk.

On the following morning we found that the child had passed a tolerably quiet night, discharging a profuse quantity of mucus through the tube, and much troubled with cough; the fauces were much swollen; the epiglottis hard and very tumid, the uvula presenting the appearance of boiled parchment. A blister was applied ever the sternum, the mercury and hippo continued, with nourishing diet. It is unnecessary to record each day's report of this case; severe bronchitis threatened on two occasions, but was successfully subdued by active treatment. I may mention that so intense was the injury sustained by the larynx, that six days elapsed from the operation before the tube could be removed, each trial made by placing the finger on the opening being followed by a most distressing cough and dyspnœa. The child became much emaciated, but is now daily improving in appearance and spirits.

I conceived it might not be unimportant to bring forward this case as a record amongst a class of accidents frequently to be met with in hospital and dispensary practice, not from any novelty in the mode of treatment adopted, or the success which, under similar unfavourable circumstances, has attended its performance in the hands of others, but that every additional case to those already published may inspire the junior portion of the profession with confidence in having recourse to the operation before too much valuable time has been allowed to pass over, and thus that an operation of such unquestionable advantage be not brought into disrepute by undertaking it when no fair prospect of success remained. Its difficulty is universally acknowledged to be greater in the child than in the adult, owing to the smaller size of the trachea, its generally increased distance, the hemorrhage, the struggles and convulsive startings of the infant, which must often tend to embarrass the most experienced surgeon. These difficulties are in part removed by seizing the trachea with a tenaculum—a plan first recommended, I believe, by Dr. Murray of Dublin in 1827, improved on by Mr. Carmichael, who used a double hook, and removed with a scissors a circular portion of the tube, as successfully adopted by him

in the case of a child, aged two years, attacked with inflammation of the glottis from boiling water. By some the removal of a portion of the trachea is not recommended. M. Velpeau deems the "simple incision always sufficient for the introduction of the canula, whilst the removal of a slip of the trachea is likely to be followed after cicatrization by an irremediable diminution of its diameter."

Mr. Porter is of opinion that, if the operation be performed on the larynx, there can be no objection to removing a portion, "because the wound is not extensive, and the hemorrhage must be trivial; but the trachea lies deeper, there is more likelihood of meeting with a troublesome or embarrassing flow of blood to delay the operation, and, even supposing that no vessel of consequence is wounded, the patient at every inspiration sucks in a quantity of blood from the open sides of the incision, and the cough, expectoration of bloody mucus, and other harassing symptoms, are continued."

In the present case, I was influenced by the great necessity there existed to stop all further bleeding, and give at once a supply of air, from the want of which at one time I thought the child had expired.

In conclusion, I wish to impress on the junior portion of the profession present that the failure of tracheotomy in œdema of the glottis, the result of taking boiling water into the mouth, would seem to be in general attributable either to the operation having been inefficiently performed, or delayed until congestion or effusion of head or thorax had set in. The present case was one which held out but faint hopes of ultimate recovery, owing to the age of the infant, the unfavourable season of the year, and the impossibility of securing a warm temperature in the room, which was situated on a damp earthen floor.—*Dublin Med. Press*, March, 1851.

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29. *Extirpation of Neuroma without Injury to the Nerve*—Formerly it was the habit to extirpate neuromatous tumours in totality, removing with them the portion of the nervous cord engaged in the tumour. The division of the nerve, when a large one, necessarily occasioned many inconveniences, as paralysis, contraction, &c. Subsequently, however, it was ascertained that the tumour involves the cellular tissue only, which envelops the nervous filaments, leaving the latter intact. Hence the evident indication that we ought, if possible, to dissect out tumours of this kind, and leave the nervous cord intact, or at least undivided. M. Bonnet, of Lyons, has performed an operation which shows the possibility of fulfilling the indication now laid down in cases where, some time ago, complete extirpation would have been resorted to.

A patient, aged 56 years, was affected with a tumour in the ham, arising from injury. The tumour had continued to grow slowly for nine years before it gave rise to any inconvenience. Some lancinating pains were then experienced, and the pains gradually augmented during two years, until they became insupportable. On examination, M. Bonnet found a tumour, about the size of a hen's egg, in the ham. Although the tumour presented pulsations isochronous with those of the heart, yet the pulsation ceased on pushing the tumour out of the traject of the popliteal artery. It was, therefore, probable that the tumour was merely neuroma of the popliteal nerve. Having first employed ether, M. Bonnet cut down on the tumour, and found that it was traversed nearly in the centre by the internal popliteal nerve. The tumour was now carefully divided, until at length the nerve appeared in sight. It was intact, and was separated without much difficulty from the tumour, which latter was enucleated from its sac and turned out. All pain, cramp, &c., now disappeared, and after the healing of the wound the patient was discharged perfectly cured.

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30. *Congenital Obliteration of the Vagina and the Mouth of the Uterus.*—Dr. Debrou, surgeon of the Hôtel Dieu of Orleans, has recorded (*Gazette Médicale de Paris*, Jan. 18th, 1851) a case of complete congenital obliteration of the vagina, with imperforation of the neck of the uterus, in which he re-established the vaginal canal and the orifice of the uterus. The patient subsequently married, became pregnant, and was delivered by the forceps of a dead infant. Labour was accompanied with convulsions, and followed by metro-peritonitis, and the patient died on the tenth day.

31. *Treatment of Stricture of the Urethra with Gum-elastic Catheters.*—[The *Dublin Medical Press* (April 16th, 1851) contains some interesting remarks on this subject, with a case by R. G. H. Butcher, Esq.]

John Clarke, æt. 40, a servant, was admitted under my care into Mercer's Hospital, February 28, 1851. His early life was very dissipated, and he refers to the fact of having had a succession of claps. So far back as twelve years ago, he was first seized with retention of urine, and relieved by the catheter; for three years before this he was labouring under great difficulty in passing water, frequent micturition, and many of the harassing symptoms of stricture. Dating from that period up to the present, he has had four attacks of retention of urine, which were relieved by instrumentation, warm baths, enemata, &c. &c.; while, during the intervals, he has been under the treatment of different surgeons, and generally with marked good effect.

Five months previous to the above date, he was seized with retention, and the urine drawn off by an eminent surgeon in the following manner: No ordinary-sized instrument could be got into the bladder, so he had recourse to the following procedure. The end of a long piece of catgut was made to traverse the contracted urethra fairly into the bladder, and over this, acting as a director, was slid a fine gum-elastic catheter; the catgut was then withdrawn, and the urine flowed off. During the consecutive five months from this date to the period of his admission, he never sought the aid of surgical advice, though for the last month the stream has never been thicker than a fine packthread, and very frequently the bladder has been emptied drop by drop.

On the night before this application to the hospital he had been drinking, and early in the morning was admitted with retention of urine. An ineffectual effort had been made to pass a catheter before I saw him, and I did not think it prudent to try again. By my directions a very full cathartic enema was administered, which acted freely. He was placed in a warm bath, and a full opiate given. When in the bath about a quarter of an hour, the urine began to dribble away, and the bladder emptied itself. I made no further examination then, but ordered a hip-bath at night, and an oil draught with tincture of opium immediately after.

March 1st. The bladder has perfectly emptied itself, and I saw the patient make water to-day in a stream not thicker than a thread, accompanied by great straining. On examining the urethra externally, it is hard and firm to the touch, about two inches and a half from the orifice, and there is a firm, hard, unyielding mass behind the scrotum, in the perineum. On exploring the canal with a No. 7 bougie, it was abruptly stopped at the point above noted; instruments of various sizes were tried ineffectually, until a No. 1 gum-elastic catheter, mounted on a firm stilet, was made to pass. This grated along a firm unyielding structure, at least an inch in extent: the instrument then moved freely on, until in front of the bulb, when it met with the same kind of resistance as that which it had just overcome. This part of the urethra was so contracted, that with great difficulty the catheter was made to pass, and, having arrived at the membranous portion, it was arrested altogether. Having gained so much, I commanded the patient to let the instrument remain in as long as it did not produce much uneasiness there. He was able to wear it for two hours and a half. On its being withdrawn, ordered—

℞ Mist. camph. ℥i;
Tinct. opii gutts. xxx;
Liq. potass. gutts. xv. M. Ft. haust.
And immediately a hip-bath.

2d. Made trial of the No. 1 catheter again to-day, but with no better effect than on yesterday; it remained wedged in the stricture for three hours, and was borne without pain. The draught and hip-baths as on yesterday, and at night an oil draught with opium.

3d. The stream of urine passed to-day not enlarged, but attended with less straining. I passed the finest gum-elastic catheter made, and succeeded in getting it into his bladder. Retained it there in the usual manner, by means of an ivory ring and tapes. An opiate immediately, and a hip-bath at night.

4th. The catheter retained in the bladder all night; suffers no inconvenience from it; takes out the wooden peg occasionally to pass water. Repeat the anodyne draught and hip-bath at night.

5th. Yesterday, on getting into bed after going to stool, the instrument slipped out. I saw him immediately after, and by very gentle manipulation slipped in a No. 2 gum-elastic catheter firmly mounted, without giving the least pain; retained it as before; administered an anodyne immediately after, and ordered a hip-bath at night.

6th. Has suffered no pain from the presence of the instrument since yesterday; relieves the bladder through it occasionally, by removing the wooden peg: slight purulent discharge from the urethra, showing the effect of pressure on the strictured parts. To have a hip-bath and anodyne at night.

7th. Slept all night; feels no uneasiness from the catheter, which has not been disturbed for forty-eight hours. Repeat the hip-bath and anodyne at night.

8th. Withdrew the catheter; slightly incrusted with lithic acid deposit, it being retained in the bladder seventy two hours; has suffered no inconvenience from it; passed a No. 3 gum-elastic catheter firmly mounted; for a short time it was resisted at the membranous portion of the urethra, but in five or six minutes was allowed to glide into the bladder; retained it as before; administered an opiate immediately, and to have a hip-bath at night.

11th. Suffers no pain from the instrument, though undisturbed for the last seventy-two hours; withdrew it, incrusted with lithic acid deposit; purulent discharge from the urethra not increased; passed into the bladder a No. 4 gum-elastic catheter: retained it as before; after doing so, ordered at once—

℞ Mist. camph. ℥i;
Tinct. opii gutts. xxv;
Liq. potass. gutts. xv. Ft. haust.
An oil draught at night and a hip-bath.

12th. Feels very comfortable; bowels gently freed, without pain; no uneasiness referred to the bladder. Omit the opiate at night; the hip-bath to be repeated.

14th. Some urine and pus passes at the side of the catheter, indicative of the dilatation of the contracted parts; introduced a No. 5 gum-elastic catheter to-day. Stopped the opium; hip-bath at night.

16th. Urethra and bladder so quiet, passed in a No. 6 gum-elastic catheter, and retained it as before; immediately after gave his opiate and alkaline draught; hip-bath at night.

20th. Last night the instrument slipped out; I tried this morning to pass it, and could not readily do so; therefore administered a full opiate, placed him in a warm hip-bath, and in an hour after, without the least difficulty, passed the same catheter into the bladder, and retained it there.

22d. Passed into the bladder a No. 7 gum-elastic catheter, and immediately after put him into a hip-bath, and gave a full opiate, and at night the bath to be repeated.

26th. Has had a hip-bath every night since last report, but the opiate was suspended; removed the No. 7 catheter from the bladder; though creating no irritation, yet I wished to substitute a larger one. This last was undisturbed for ninety-six hours; scarcely any purulent discharge from the urethra; the urine let off by it, four or five times in the twenty-four hours, is quite clear, deposits no sediment on cooling, which, taken together with the patient's feelings, point to, and substantiate the fact that there is no irritation of the bladder. Tried to pass a No. 8 gum-elastic catheter, but failed; administered an opiate, and had him placed in a hip-bath, and I returned in two hours, when I readily passed the No. 8 instrument into the bladder, and retained it there.

29th. Has not had the least annoyance since last report; the urine was quite natural in colour, and no mucus or sediment deposited on cooling. I withdrew the No. 8, and passed into the bladder a No. 9 gum-elastic catheter, and retained it as before. Hip-bath every night.

April 1st. Removed the No. 9 instrument and quickly introduced a No. 10

gum-elastic catheter, and fastened it as before. Hip-bath and an oil draught with opium at night.

2d. In going to stool this morning, the catheter slipped out, but without difficulty I replaced it. To have his hip-bath.

6th. Is not suffering the least pain or inconvenience from the presence of the instrument. There is merely a trace of pus from the urethra, and no evidence whatever of irritability of the mucous membrane of the bladder. On this morning I readily introduced a No. 11 gum-elastic catheter firmly mounted, and retained it as before; an opiate was given soon after, and a hip-bath ordered at night. On examining the urethra externally, the hardness and adventitious structure, deposited both anteriorly and behind the scrotum, are nearly all removed, and no pain whatever is elicited on pressure along the entire track of the canal. Not the least remarkable feature in the history of this case is the improved appearance and general health of the patient. He has lost the sallow, haggard look, and anxious countenance—those features so peculiar as to be almost pathognomonic of the affection under which he laboured; he has now pulled up flesh, and his entire appearance bespeaks happiness.

The mode of cure by the catheter—the practice adopted in this case—was introduced by the celebrated Desault, who made all strictures amenable to its employment. The treatment by this method has also met with warm supporters in the names of Brodie, Liston, and Miller. The former says: "When the gum catheter has entered the bladder, withdraw the stilet, and leave the catheter with a wooden peg in its orifice, which the patient is to take out whenever he has occasion to void his urine, it being at the same time secured by a suitable bandage. After three or four days, you may withdraw the catheter for twelve hours; or, if much suppuration is induced in the urethra, you may withdraw it for a longer period; then introduce a larger catheter than the first; and thus you may, in the course of ten days or a fortnight, dilate a very contracted urethra to its full diameter. This is a very certain and expeditious method of curing stricture."—*Brodie, op. cit.*, p. 51.

Mr. Liston, at p. 472, *Practical Surgery*, expresses himself to this effect: "If the operation has been performed on account of retention, or if it has been threatened—and it is very apt to follow the swelling which always supervenes more or less upon the use of an instrument in very bad stricture—it may be prudent to retain the catheter. This is a very efficient, safe, and quick method of freeing the patient from bad stricture. It matters not how small the foreign body may be. Nature soon sets about a process to free herself from it; the passage is widened remarkably, and a most profuse discharge established, so that within forty-eight hours the instrument, which had been grasped most tightly, lies now quite loose, and the urine flows along it; it may then be withdrawn, and a large-sized catheter or bougie immediately substituted without difficulty."

Now, as to the two points of practice in my case, the wedging of the catheter in the stricture day after day until it reached the bladder, and then the retention of the instrument, and the substitution of larger ones, according to circumstances, until perfect dilatation was accomplished, are borne out by Professor Miller, of Edinburgh, in an admirable paper on the treatment of stricture of the urethra by perineal section, read before the Medico-Chirurgical Society of Edinburgh, and published in the *Lancet* for March 22, 1851.

"We must not lose sight," says this eminent professor, "of the two modes of using the catheter and bougie, well adapted to the final subjugation of cases even of great obstinacy. The method of *tunnelling*, as it may be called, founded on the fact that immediate penetration of the stricture is not essential to its cure. Instead of a small bougie, one of medium size is selected, and is passed down to the contracted part, into the anterior portion of which the extremity of the instrument, made somewhat conical for the purpose, is sought to be insinuated. There it is allowed to remain for a longer or shorter time, according to the feelings of the patient, and such use of the instrument is repeated at the ordinary intervals. On each occasion the penetration may be expected to deepen; ultimately the whole obstruction having been removed, as it were, by instalments, the instrument glides unopposed into the bladder, and, from this

high platform, the surgeon then proceeds in the ordinary work of final dilatation." "In my own experience, many an obstinate stricture has given way satisfactorily to this means, often without much or even any delay, and always without any unpleasant complication." "The other method is by tying in the catheter for forty-eight hours or thereby, a method well suited to the gristly and resilient stricture."

One of the striking features in the case just detailed is the fact that very little irritation was produced by the presence of the instrument, and this is the more remarkable when we bear in mind that the urethra was so narrowly contracted, in many inches of its course, as only to admit the finest catheter made; indeed so tight did it fit when it had reached the bladder, that it was with great difficulty moved either backwards or forwards. At the end of fifty hours, vital dilatation had taken place to such an extent that, when the patient went to stool, the instrument readily slipped out. Now, the increased calibre produced in the urethra was not attended at any period with very considerable amount of purulent secretion, and towards the end of the treatment it had nearly subsided altogether. During an uninterrupted period of thirty-seven days, this man had a catheter retained in his bladder, and through which the urine was voided for that time. By this means the fluid rarely or never came in contact with the walls of the urethra. To prevent such an occurrence, whenever the instrument felt loose, I always withdrew it and substituted a larger size, so as to prevent the urine trickling along its sides. There are other minutiæ to be attended to in the local management, which are closely watched here, and though apparently trifling, I conceive of great moment in warding off irritation. The first is, not to allow the catheter to project far into the bladder; and secondly, to permit a small quantity of urine always to remain in the bladder. By these precautions, the instrument is prevented fretting the mucous membrane of that viscus. After changing the catheter, a full opiate was in every instance immediately administered, and the patient placed in a hip-bath; indeed, to the constant immersion of the parts under treatment in hot water, the free exhibition of opiates and gentle laxatives, I attribute mainly the exemption from irritation and rigors which so strikingly characterized this case all through. I have selected the foregoing case to show that the most unpromising and advanced callous stricture may be brought to yield to the judicious application of the gum-elastic catheter—unfortunately a mode of treatment which, without good reason, has been allowed to fall into disuse.

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32. *Congenital Dislocation of the Head of the Radius forwards.*—Prof. R. W. Smith exhibited to the Pathological Society of Dublin a cast and preparation of this rare malformation of the elbow-joint, and made the following observations respecting it. In February, 1840, in a communication upon the subject of abnormal elbow-joints, Mr. Adams detailed the particulars of the case of a man named Horseman, whose right elbow-joint presented an example of congenital luxation of the head of the radius upwards and outwards, and exhibited a cast, showing the external characters of the deformity;* and in March, 1849, he brought before the notice of the Society the subject of congenital luxations of the head of the same bone backwards. Upon the present occasion, through the kindness of my friend, Dr. Mayne, I have an opportunity of exhibiting a cast and preparation of congenital dislocation of the radius directly *forwards*. I may here mention that the female who was the subject of this deformity had likewise congenital dislocations of the wrist and of the knee: to these, however, I shall not now allude, but shall confine myself to the consideration of the condition of the elbow-joint. The woman was about forty years of age, and had been long an inmate of the South Dublin Work-house; she died of an attack of acute dysentery in the early part of 1849, and the following were the results of the examination of the left upper extremity:—

The forearm was flexed upon the arm at a right angle, beyond which it could not be bent, and could only be extended so far as to form a slightly obtuse angle. It remained habitually in the semi-flexed position, with the hand mid-

* Dublin Medical Journal, first series, vol. xvii. p. 505.

way between supination and pronation; neither of the latter motions could be fully performed.

The joint, viewed upon its external aspect, presented a remarkable projection, formed by the outer condyle of the humerus, which descended so low as to be, in the semi-flexed position of the joint, nearly upon the same level as the commencement of the olecranon process of the ulna; it was, moreover, curved forwards and inwards, so as to present posteriorly a striking convexity; it was much larger and more prominent than the internal condyle, which, however, also seemed to be placed lower down than natural with respect to the ulna.

The summit of the olecranon, in every position of the joint, was placed above the condyles; but its lower portion, where it springs from the shaft of the ulna, was in a great measure concealed between these processes.

Directly in front of the enlarged outer condyle of the humerus, a rounded osseous tumour could be felt, which, as it partook of every motion imparted to the shaft of the radius, was concluded to be the head of that bone; as much of it as could be felt was of an orbicular form.

Comparing, in my mind, these appearances with those observed in the case of Horseman, whose elbow-joint I had frequently examined, and who was known never to have received an injury, nor to have suffered from disease of the articulation, there was no difficulty in arriving at the conclusion that the case afforded another example of congenital dislocation of the head of the radius; and the opinion that the luxation was congenital was further confirmed by the co-existence of the malformations of the right upper and of the left lower extremities, which I have already mentioned. There exists, however, this difference between the two cases, namely, that, in the present instance, the head of the radius is displaced forwards, while in that of Horseman, it is described by Mr. Adams as being dislocated upwards and outwards.

The muscles (which, although pale, were not remarkably attenuated) having been removed, the bones and ligaments were carefully examined. The lower extremity of the humerus presented no traces either of trochlea or capitulum, nor any evidence of these processes having ever existed. In place of them there existed a deep fossa or excavation, into which was received the great sigmoid cavity of the ulna, in such a manner that, when the forearm was flexed to a right angle, the coronoid process struck against the front of the humerus, and extension was at once checked by the olecranon coming in contact with the back of the same bone.

The outer condyle of the humerus, which was much larger than natural, and curved forwards, was deeply excavated anteriorly, in such a manner as to form with the lesser sigmoid cavity of the ulna, which was also enlarged, a socket which accommodated the head of the radius, which was strangely altered from its natural form.

This process, instead of presenting a circular outline with a concave summit, resembled in form the section of a sphere, its internal portion being, as it were, cut vertically, so as to present a surface nearly flat to the altered lesser sigmoid cavity of the ulna; the rest of the head of the bone, namely, all that could be felt through the muscles and integuments, was of an orbicular shape (as in the case of Horseman), and rolled in the excavation of the humerus already mentioned, during the motion of supination, which could be carried to a much greater extent than that of pronation. Both these motions were, however, very confined, for the lower extremity of the radius was as ill adapted to their complete execution as the superior. The lower extremity of the radius, which, in the natural state, presents a concavity where it articulates with the head of the ulna, was in contact with the latter by a nearly flat surface.

The superior extremity of the ulna was twisted in such a manner that the cartilaginous surface of the greater sigmoid cavity of the ulna was directed inwards. The neck of the radius could not be said to exist, the head springing almost directly from the shaft of the bone; the reverse of what is usually found in cases of congenital luxation of the head of the radius backwards, the neck of the bone being in these cases elongated to such a degree as to render the radius and ulna of equal length. The external and internal lateral ligaments existed, but ran in a direction nearly horizontal; the former passed outwards in

an almost transverse course, to be attached to an exceedingly thin, broad, and imperfect coronary ligament.

The similarity which this case bears to that detailed by Mr. Adams will be rendered evident by the following extract:* "When we view the joint on its external aspect, the outer condyle is observed to be large, and placed as low down nearly as the olecranon process; above it a very conspicuous orbicular eminence is seen, which moves freely with the radius when a motion of rotation is communicated to the forearm; the inner condyle also descends very low down; the two condyles and the lower portion of the olecranon process (in the semi-flexed position of the joint, which it ordinarily remains in) are on the same plane; the lower extremity of the humerus is probably excavated to receive the greater sigmoid cavity of the ulna. The neck of the radius rotates on the ridge of the humerus, which descends to the outer condyle, above and somewhat behind the plane of the most anterior part of which the head of the bone is placed." Mr. Adams remarks, in conclusion, that this is the third case of lateral dislocation of the radius recorded, and the first of the congenital luxation of this kind as yet exhibited to the profession.

In the same year, that is, in 1840, Guérin recorded a case of congenital luxation of the head of the radius forwards and upwards,† but the record is so brief and so completely deficient in details as to be of little value. It is as follows: "*Luxation de la Tête du Radius en avant et en haut,* consistant dans le glissement de cet os au-devant de l'humérus, vers la fossette coronoïde de ce dernier. Cette luxation est nécessairement accompagnée de diastase des articulations radio-cubitales et de pseudo-luxation du carpe. Nous avons eu, l'année dernière, dans notre service, une jeune fille de sept ans offrant la même difformité des deux côtés."

Three varieties of congenital luxations of the head of the radius have now been established, viz: backwards and upwards; forwards, upwards, and outwards; and directly forwards.—*Dublin Quarterly Journ. Med. Sc.*, Aug. 1850.

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33. *Dislocation of the Clavicle downwards, beneath the Acromion Process of the Scapula.*—R. G. W. Butcher, Esq., records, in the *Dublin Medical Press* (April 9, 1851), a case of this very rare accident, in a powerful muscular man, 50 years of age, a patient at Mercer's Hospital.

The mode in which the accident occurred was the following: The man was assisting a comrade in carrying a heavy press, the edge of which rested on his right shoulder. The load was too great for him, and he yielded under it, the weight changing its position farther in upon the clavicle; in falling, he thrust his hand out rigidly against the ground in the effort to save himself; this checked his fall, but from the resistance offered, the humerus, with the scapula fixed upon it by its powerful capsular muscles, was driven forcibly upwards, while the weight still acted on the clavicle, tearing through its ligaments and impelling it downwards: thus the two forces, tending in contrary directions, combined towards the production of this rare displacement. On removing the clothes from the upper part of the body, and viewing the patient in front, the most striking characteristic was the non-symmetrical distances between the external margin of the acromion processes on the right and left sides and the mesial line of the sternum; that on the right being, by measurement, an inch and a quarter less. The right shoulder also presented a very remarkable prominence, formed by the acromion, and rendered more in relief by the depression internally, occasioned by the clavicle passing beneath it; the lip of the latter could be felt a little to the outer edge of the external margin of the acromion, and lifting up the fibres of the deltoid; the superior edge of the articulating surface of the acromion was elevated, and might be discerned through the integuments; the fingers could be passed uninterruptedly from behind forwards along the spine of the scapula to its expansion into the acromion process. On pressure at its outer side, the projecting articulating end of the clavicle beneath it could be detected, as noticed above. The rotary motions of the joint were perfect, and might be performed by the surgeon without pain or suffering; but on the part of the patient there was complete inability to elevate the limb.

* Loc. cit.

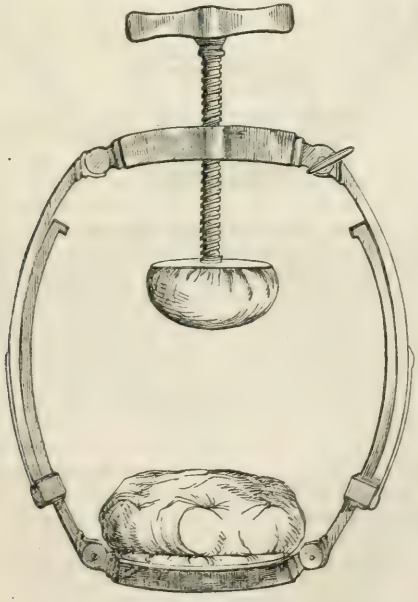
† Gazette Médicale, 1840.

The deformity was removed when the shoulder was drawn forcibly back, or by the following manœuvre—first, drawing the arm a little backwards, keeping the extremity of the humerus close to the side with the right hand, and with the left grasping the upper part in the axilla, then, by pressing the shaft of the bone upwards and outwards, and at the same time carrying its inferior extremity forwards in a line with the anterior wall of the axilla, and continuing the force upwards, the acromion process was disengaged from off the clavicle, and by using a pad in the axilla, and retaining the arm in this position, excellent coaptation was effected. Mr. B. saw this patient three times after the accident, at intervals of a fortnight. After the pain and uneasiness about the joint had subsided, he became intolerant of restraint; and in five weeks used the limb with nearly as much freedom as the sound one, but with considerable loss of power.

A well-described case of this accident is given by Tournel in *Archives Générales de Médecine*, 1837; and another has recently been treated by Mr. Partridge, in King's College Hospital, London, and alluded to in the *Lancet* for January, 1850, in these terms: "The unusual circumstance of the case is that the acromial end of the clavicle is dislocated, not upon the acromion, as is commonly the case, but *below* that process, a fact which the fingers easily detect. There is no fracture, as might at first have been imagined, but this rare displacement has taken place, probably owing to the peculiar manner in which the horse or vehicle struck the patient's chest."

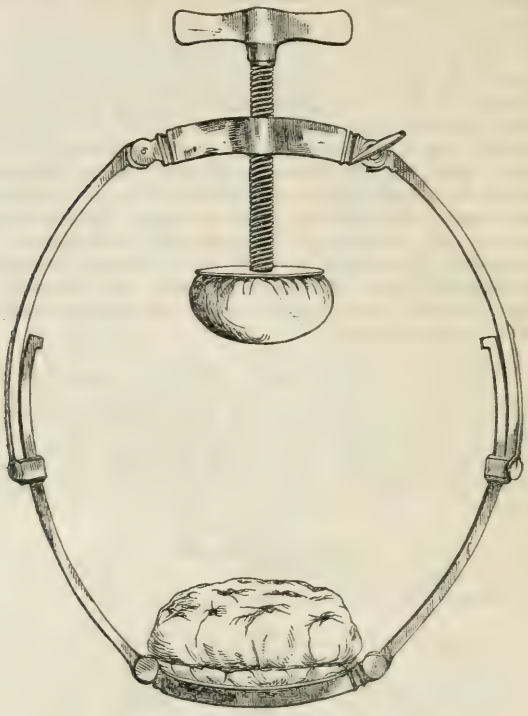
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34. *Skey's Tourniquet.*—The tourniquet which I have substituted is composed of two semicircles, one of which fits into the other by running in a groove. Each half is fixed by a spring catch to the other, and may be enlarged or reduced at will to any size required for the thigh or upper arm. When required for application to the thigh, the circle, which is made to open, to admit of its application around the limb, is drawn out to its fullest size. In the centre of



each semicircle is the pad for pressure and counter-pressure, the former being provided with the ordinary screw. The pads are made small, in order to include as little surface in the pressure as is compatible with the safe application of the instrument. When employed for a lesser limb, the arm for example, or

the thigh of a child, the circle is lessened to the required size by raising the lateral springs, and pressing the outer half or semicircle downwards upon the inner one, by which the large circle is converted into one of smaller size, the alteration being obtained by the introduction of two hinges in each half of the instrument.



I have found this tourniquet exceedingly efficient in its avoidance of the objections to that commonly used, and equally so in its power of arresting arterial hemorrhage. It is also especially applicable to cases requiring pressure for the treatment of aneurism, being less irksome and painful to the patient, when worn for a considerable time. The circulation in the main artery, which is the only one demanding compression, and for which purpose alone, indeed, the instrument is worn, is thoroughly arrested, while the collateral vessels are unaffected, and the current of blood in the venous system, except that of the chief vein, which is in close proximity with the artery, is altogether uninterrupted.—*Operative Surgery.*

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35. *Injury of the Shoulder-Joint.*—Dr. Adams described to the Pathological Society of Dublin a case of dislocation of the head of the humerus forwards, which had been reduced, with the account of the *post-mortem* examination of the articulation, made thirty days after the occurrence of the luxation, the patient having died from the effects of another injury sustained fourteen days before her decease.

Eliza Dillon, aged 65, applied for surgical aid at the Richmond Hospital on October 27, 1849. She stated that she had fallen with much violence, and with her left arm extended from her side, in such a manner that the shock was chiefly sustained by the inner part of the elbow. The resident pupil, Mr. Johnston, recognized the usual characters of dislocation of the head of the humerus

forwards; he noticed a remarkable flattening of the deltoid muscle, and felt the head of the bone in its new situation. His colleague, Mr. Roden, also recognized the injury, as did likewise Surgeon Bichaque. The head of the bone was replaced without difficulty, Mr. Johnston having adopted the plan of placing the knee in the axilla; the patient expressed herself relieved, and went home. In a few days she returned to the hospital, complaining of more pain in her shoulder-joint than patients usually do after the reduction of this dislocation, when she was subjected to the ordinary treatment for a sub-inflammatory condition of the articular structures.

On the sixteenth day after the shoulder had been luxated, this woman, being deaf and rather feeble, while heedlessly walking across the street, was knocked down by a passing vehicle, and received a compound fracture of the elbow-joint, of which, after having suffered from constitutional irritation and erysipelas for fourteen days, she died. The left shoulder-joint was examined after death: the deltoid muscle having been reflected, it was seen that the supra and infra-spinatus muscle had torn off a large portion of the great tuberosity of the humerus, and that this portion had been partially reunited to the shaft by recent bony deposit. The anterior portion of the tuberosity, which lay next to the bicipital groove, still remained entire, and gave attachment to some of the tendinous fibres of the posterior articular muscles already mentioned.

Upon exposing the subscapular muscle, its upper margin, near to the coracoid process, seemed somewhat ecchymosed; and upon lifting up this muscle from the subscapular fossa, in the vicinity of the coronoid process, some well-formed pus was evacuated from the interior of the joint.

The capsular ligament was of a yellowish-white colour, and thickened, but no rupture could be discovered in it. On cutting into it, the whole of the synovial membrane was found to be in a high state of vascularity. The appearance which it presented might be compared to that of the conjunctiva when in a state of acute inflammation. Upon examining the glenoid cavity, it was discovered that a portion of its inner margin was torn off. This piece of bone was more than half an inch in length, and three lines broad. The cartilage of incrustation of the head of the humerus presented a porous appearance, as if punctated by small pin-points, and was very thin, as in some examples of diffuse inflammation.

With respect to the muscles in this dissection, it is to be remarked that they seemed to have suffered no injury. The supra-spinatus and neighbouring short articular muscles are those which in general have been found to have suffered most in cases of dislocation of the shoulder; although in this instance these muscles were not torn, their tendinous insertion had been partially broken off. The double lesion of the tuberosity of the humerus and inner margin of the glenoid cavity, if it had been to any greater extent, might have prevented the head of the humerus from being preserved in its socket after the reduction of the displacement, and thus have presented a repetition of a specimen preserved in our museum, and which Mr. Smith has already laid before this Society. In the case I have brought before the meeting, the bone, once replaced, remained in its socket; but in Mr. Smith's case, as the tuberosity was entirely torn off, all the posterior articular muscles, which should have retained the bone in its place when restored, had lost connection with the humerus; it was thus abandoned altogether to the force of the muscular folds of the axilla, which displaced the bone forwards and inwards, and held it in the abnormal position. Mr. Thompson, about the year 1792, first noticed that a dislocation of the humerus might be complicated with a fracture of the tuberosity; and Sir Philip Crampton published a similar case in the third volume of the First Series of the *Dublin Medical Journal*.

With respect to the capsule in Sir A. Cooper's and Sir Philip Crampton's cases, this ligament was extensively torn. In the case now adduced, examined thirty days after the injury, no rupture of the ligament could be observed. We may, I think, from this infer that, in this case, notwithstanding the obvious deformity observed, the degree of displacement must have been to the smallest amount possible, as the capsular ligament had not been torn; yet there can be no doubt but that the head of the dislocated bone lay beneath the root of the coracoid

process. It is true the laceration of the insertion of the posterior articular muscles may have allowed the posterior portion of the capsular ligament to yield somewhat, and the tearing off of the inner or anterior margin of the glenoid cavity may have contributed to the same result.

Amongst the Hunterian manuscripts, were found, in the handwriting of John Hunter, the notes of a case of dislocation of a shoulder-joint, which resembled this in many particulars. A man was admitted into St. George's Hospital, London, with a dislocation of the humerus into the axilla, which was reduced, and about three weeks afterwards he died of fever. "I was anxious," says John Hunter, "to see the state of the parts in so recent a dislocation. On dissecting off the infra and supra-spinatus muscles, I found nothing uncommon respecting the capsular ligament; but when I dissected off the subscapularis I found the ligament in some degree injured, so as to have lost a good deal of its uniformity. It was of a dark bluish colour, in consequence of extravasation of blood into it, in part absorbed. I cut the capsule round nearly to the os humeri, where it was sound, so as to expose the inner surface of the ligament, and found that on the inner surface between the insertion of the tendon of the subscapularis muscle into it and its fixture to the edge of the glenoid cavity, it was injured, corresponding to the external surface, although I could not say fairly ruptured through. I also found that a circular part of the cartilage on the edge of the glenoid cavity, to which the ligament is attached, was torn away from the bone for about an inch of the circle, and which must have been pulled off when the head of the humerus pressed against the ligament with great force; but it kept its attachment by the remainder. The separation was such that it could not allow anything to pass between the bone and it. There was little or no extravasation of blood in the cavity of the joint; but, what was very remarkable and what I did not expect, I found a good deal of pus in the joint. If this is common in such cases, what becomes of it? Here," he adds, "was a case of *undoubted* dislocation, and yet the capsular ligament was *not torn* when the luxation was effected, although it must be supposed that the giving way of the cartilage at the edge of the glenoid cavity admitted the ligament to yield more than it otherwise would. Although the ligament was not torn so as to let the head of the bone escape through the rent part, yet the head of the bone was certainly out of the socket; and, from all the appearances and circumstances taken together, how it got there without doing more mischief I do not understand."—*Catalogue, Royal College of Surgeons, England*, vol. ii. p. 206.

In visiting the museum of the College of Surgeons of London, two years ago, I took particular notice of this preparation thus alluded to in the catalogue; and I at the same time felt astonished that these facts, recorded by John Hunter himself, had escaped, as far as I knew, the notice of those who had written on dislocation of the shoulder. This case recurred to my mind with much interest when I met with the specimen I now present to the Society. From such cases as these we should infer that we ought to examine carefully every case of luxation of the shoulder-joint, both before and after we have replaced it, with a view of ascertaining if the luxation is a simple one, and unaccompanied by fracture or lesion of bone besides the luxation; and, secondly, that we should watch any symptoms of arthritis in time, in order to meet them with appropriate treatment, and prevent any serious consequences. In the case I have presented we discovered an amount of inflammation of the shoulder-joint, which no one had anticipated to have existed at the time when the patient was carried off by the effects of another injury.—*Dublin Quarterly Journ. Med. Sc.*, Aug. 1850.

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36. *Fragilitas Ossium.*—Prof. R. W. Smith exhibited to the Pathological Society of Dublin the pelvis and thigh bones of a female who had suffered from this disease, and which had been forwarded to him by Dr. Campbell, of Lisburn. The following was the history of the case, as furnished by Dr. Campbell:—

Eliza Cosgrave, about forty-five years of age, a married woman, and mother of two children, the elder being nine years old and healthy, the younger having died when about three months old, began, shortly after the birth of her second child, to complain of pains in her limbs, and generally over her body, which she attributed to her residence in a damp house. She soon became so helpless as

to be unable to get into or out of bed without assistance. On one occasion, while being helped into bed, her thigh was struck against the bed-post, and the femur broken just below the trochanter. She now obtained admission into a neighbouring hospital, where she remained many months, and was then discharged without having experienced any amendment of her condition. In this state she was removed into the Lisburn Union Workhouse, about two years ago. On examination, the injured limb appeared to be about three inches shorter than the other; there was no crepitus, although acute pain was experienced when the thigh was handled or moved. Her general health at this time did not appear much broken, and her appetite was good; but her pains, chiefly in the thigh, were so severe as to require the administration of an opiate every night. Several months having elapsed in this manner, one night whilst the nurse was turning her in bed, the other thigh was also broken near the trochanter, after which her pains for some weeks were mitigated to a certain extent. Diarrhœa at length set in, and resisted all treatment; her pains returned with greater violence than before, and she died after a few weeks of extreme suffering.

Upon examination after death, the fractures were found to have occurred about two inches below the great trochanters; they had both become consolidated, but with great deformity remaining, the fragments being, upon each side, at right angles with one another. The pelvis and thigh bones were so light as to float upon water, and so fragile that a slight pressure of the finger was sufficient to crush the osseous tissue. The compact structure of the femora was as thin as an egg-shell, and the medullary canals enlarged, here and there crossed by delicate osseous septa, and filled with a grumous semifluid substance, resembling a mixture of medullary matter and blood. Mr. Smith observed that the facility with which fractures united in such cases was remarkable, the union, as Mr. Stanley has noticed, occasionally taking place within the ordinary period. Mr. Tyrrell has recorded, in the "Reports of St. Thomas' Hospital," a case of fragilitas ossium, in which twenty-two fractures occurred, and observes that the injuries were repaired with greater rapidity than he had seen in other individuals, the union of the fracture of the femur being perfectly firm at the expiration of three or four weeks.

Mr. Smith, in conclusion, alluded to the extraordinary case of this disease recorded by Saillant* in which the lightness of the osseous system was such that the patient, an adult female, when placed in a warm bath, actually floated upon the surface of the water.—*Dublin Quarterly Journ. Med. Sc.*, Aug. 1850.

37. *Chloroform in Gonorrhœa.*—M. Venot recommends injections of chloroform as an *abortive* treatment of gonorrhœa, that is to say, of arresting it in the earliest period of its development; and thinks that it will replace the nitrate of silver, which is so frequently employed for this purpose. Pure chloroform is injected by a glass syringe, the perineum being pressed upon; the first effect is burning heat, then a sensation of cold follows. The injection does less good after the first two or three days of the gonorrhœa have passed; but, employed before that time, it almost invariably arrests it. Injected into the vagina, the results were less satisfactory.—*Med. Times*, April 19, 1851, from *L'Union Méd.*

OPHTHALMOLOGY.

38. *Observations on Collyria.*—[Dr. Arthur Jacob, one of the best informed, most judicious, and most reliable ophthalmic surgeons of our day, has published, in the *Dublin Medical Press* (May 7th, 1851), some very interesting remarks on collyria, which are well worthy the consideration of practitioners:—]

While discussing the treatment of each form of purulent ophthalmia, and the consequences thereof, I have had to notice repeatedly the various medicinal remedies applied directly to the conjunctiva, and to suggest inquiries respecting their *modus operandi*. I find, however, that it is desirable to offer some addi-

* Journal de Médecine, Chirurgie, et Pharmacie, 1782, t. lviii. p. 141.

tional remarks on the subject by way of explanation. I have said that these remedies probably operate in three ways: as stimulants, astringents, and escharotics; and, I may add, as sedatives. This, I think, can scarcely be denied. That most, if not all of them, stimulate, cannot, I think, be doubted, and that some act as escharotics, is equally obvious; the astringent effect also seems undeniable, although perhaps the exact change of structure produced by astringents may not be so clearly established. It is assumed to be a diminution of the size of capillary vessels and a contraction of secreting parts, and apparently with reason. The sedative effect is not, however, so unquestionable, if we assume that the cessation of pain is evidence of it; for, notwithstanding an apparent belief to the contrary, remedies which uniformly allay pain are not in our hands. Still the existence of these four qualities in medicinal remedies, in a greater or less degree, is so far established that the practitioner may with safety make his selection in accordance with such a view. The use of an application simply stimulating in inflammation of the conjunctiva, or its consequences, may on consideration appear difficult of explanation; it seems like adding fuel to fire; yet it is doubtful whether the beneficial effect of a solution of nitrate of silver at this period is not from its stimulating properties: the impunity, if not advantage, often derived from weak medicinal solutions, indiscriminately used in routine practice, is also in favour of the conclusion that, even in the acute or active stage of inflammation, stimulation may sometimes be beneficial. I am not, however, advocating the practical application of such a theoretical view, I would only suggest an inquiry into its soundness; for the subject is one for consideration in other departments of the healing art as well as this. But whatever doubts may be entertained respecting the possibility of a beneficial operation by stimulants in the acute stage, there cannot, I think, be any respecting the advantage to be derived from them, sometimes at least, in that state of the conjunctiva which follows, and which has been called the chronic stage. After the tension of inflammatory action subsides, and when pain abates, and a mild purulent secretion is established, astringent applications unquestionably prove beneficial; and at a more advanced period, if these fail, or that symptoms demanding them ensue, stimulants also are found of advantage. The peculiar condition of the parts to which stimulating applications are suited does not, however, appear to be well understood; they are often used indiscriminately or empirically. It is, I think, when a sensation of scalding, with flow of tears and intolerance of light prevails, that they are useful; or when no other inconvenience remains except a certain tenderness or rawness of surface, depending perhaps on a want of epithelium. Of stimulating applications, the two most extensively employed are the *vinum opii* and the weak solutions of sulphate of zinc and copper, and such has been their success that they have become popular remedies, even beyond the limits of our profession.

I have already in a former paper expressed my opinion as to the value of the *vinum opii*, and quoted Mr. Ware's account of its benefits in his practice. It is now more than fifty years since his observations were published, and I know of no local application which has maintained its character amongst practical men so well. It often fails, it is true, especially when used in cases unsuited to it; but all men of experience agree that it is frequently a most useful application. Notwithstanding, however, the evidence in support of its beneficial operation, strange to say, an attempt has been just made to discard it from practice by omitting it from the Dublin Pharmacopœia, and substituting for it a simple vinous tincture without any of the aromatic stimulating ingredients. The reasons for this change I cannot discover. It was, I believe, first suggested by an oculist in London in extensive practice, although an ephemeral writer for the less scrupulous journals takes credit for its adoption. Whatever benefit attends its use seems to depend on its stimulating properties quite as much as its sedative, but probably it arises from the union of the two, although such a combination may appear unaccountable. At all events, the tincture substituted for it has no particular value, and must from the variable nature of the menstruum, and its liability to adulteration, be a very unequal preparation. Indeed, the beneficial effect of simple solutions of opium, its ingredients or pro-

ducts, in allaying painful sensibility of the conjunctiva and diminishing vascular turgescence, seems not to be so obvious as might be supposed from the sedative properties of the drug. I at one time made some experimental trials with them, using the strongest solutions in water and the common alcoholic tincture rendered less stimulating by the application of heat, but cannot say that the trial proved satisfactory. As I have stated in a former paper, the true *vinum opii* should be used in those cases only where scalding pain, profuse flow of tears, and intolerance of light prevail; and should now be prescribed under its old title of *tinctura thebaica*, or as the *vinum opii* of the London or Edinburgh Pharmacopœias.

Of the saline stimulants, the sulphate of zinc seems to have maintained its character above all others. It is the popular "eye-water" of this country, and could not, I think, have continued so for such a length of time unless it had been positively beneficial in a majority of cases. The sulphate of copper may, however, be of equal value, as well as the *lapis divinus*, a salt resulting from the mixture of alum, nitre, and sulphate of copper. Indeed, many other salts are probably equally efficient in proportion to their stimulating properties; and hence the popular use of vinegar and water, brandy, eau de Cologne, salt and water, and even urine, which is sometimes employed notwithstanding the objections its use must suggest. The sulphates of zinc and copper and the *lapis divinus* may be prescribed in water impregnated with camphor, and in the proportion of about two grains to the ounce. I generally order it in the common camphor mixture of the shops, adding a drachm of spirit and five drops of dilute sulphuric acid to an eight-ounce bottle. I have, however, to repeat, that it is in chronic cases, where the conjunctiva and edges of the lids are raw and tender, whether from preceding inflammation or not, that these stimulating applications prove beneficial. While any inflammatory action remains, or a tendency to relapse prevails, they are not desirable.

Respecting the use of astringent applications, in both the acute and chronic stage, I have already expressed my opinion. I have now only to suggest that the practitioner will endeavour to act upon some definite and exact principle as to their use. He has to settle what the precise change is which the agents called astringents produce; then whether such change is beneficial in conjunctival inflammation or its consequences; and if so, what astringent should be employed. The precise change, however, has not perhaps been exactly ascertained; whether chemical, physical, or vital. All that seems to be proved is that the surface to which an astringent is applied becomes shrivelled or corrugated, whether living or lifeless; but whether vessels become diminished in calibre, or secreting structures disabled from acting, or the epithelium coagulated by its operation, remains to be determined. Be the change, however, what it may, it seems to be proved by experience that astringents diminish the enlargement of vessels caused by inflammation, in fact remove the increased vascularity or redness, while they, at the same time, diminish or arrest the secretion of purulent matter, and perhaps benumb the sensitive *villi* or *papillæ*. Of the medicinal agents used for this purpose, tannin from the organic, and alum from the inorganic sources, seem most entitled to confidence, considering their action on lifeless structures: hence the occasional use of infusions of galls, oak-bark, and other vegetable materials, and of solutions of tannin itself. I cannot, however, say that I have found tannin beneficial in the chronic vascularity of conjunctival inflammation. Its use seems to be revived and announced as a novelty by some Belgian practitioner, but I have not repeated the trials I formerly made of it. A saturated solution of alum (sulphas aluminæ et potassæ) may be dropped with safety between the eyelids once or twice in the twenty-four hours, and a weaker solution, five grains to the ounce of water, may be more freely used as a *collyrium*. It has, probably, more astringent with less stimulating properties than any other salt, but the sulphates of zinc and copper are also astringent, although more irritating. Acetate of lead seems also to be powerfully astringent, with little stimulating qualities, and even perhaps with some sedative operation. Nitrate of silver also, as I have already stated, is a valuable astringent in the proportion of ten grains to the ounce of water. The practitioner may, I believe, with safety, give most of the metallic salts a trial,

if so inclined, and may add to our information by recording the results of such experiments. At one time I made many experiments with some of them, but the result was a greater reliance upon alum, acetate or diacetate of lead, and nitrate of silver.

Of the value of what are called sedative applications in conjunctival inflammation and its consequences, no very accurate estimate seems to have been formed, notwithstanding their frequent use. Warm stupes and tepid lotions containing narcotic materials are considered beneficial in the acute stage; but whether the apparent advantage attending their employment depends more on the warm moisture than the medicinal influence, appears doubtful. I have from time to time used opium, hops, hemlock, hyoscyamus, belladonna, and tobacco, in this way, but still remain undecided as to their medicinal value, except in cases assuming a neuralgic character, where they appear to be of positive benefit when used of proper strength. The value of sedative applications directly to the conjunctiva seems also undecided, although generally assumed to be unquestionable. Opium, and the narcotic products derived from it, after a fair trial, seem beneficial in particular cases only. They do not uniformly allay the scalding pain which accompanies the increased vascularity consequent to inflammation, notwithstanding the notion very generally entertained that they must necessarily do so. I have just alluded to the use of the *vinum opii*, and am convinced that its admitted beneficial operation depends upon the combination of sedative and stimulant properties in the preparation; neither strong solutions in water, nor simple tinctures in wine or alcohol, have the same effect. I have tried tinctures of hop, hemlock, and tobacco, in cases where the *vinum opii* generally succeeds, but I cannot say that I have found them of much value, although they may be used with safety. The acetate and diacetate of lead are generally considered to possess sedative properties, but I cannot discover on what grounds. They are, I believe, powerful astringents, with moderate stimulating properties, and may be used in any strength, not being escharotic, however applied. The common Goulard's extract (liquor plumbi diacetatis) and the saturated solution of the acetate of lead may be dropped into the eye without fear of any ill consequence, and, in the chronic vascularity following catarrhal ophthalmia, with great benefit. I have been in the habit of using a *collyrium* made by mixing the diacetate of lead with the *acetum opii* in water; and latterly have been trying a strong preparation of this nature, made by mixing equal parts of Goulard's extract and acetum opii. There is of course decomposition in such a mixture, and a copious precipitate is thrown down; but the fluid obtained by filtering or rest is evidently an efficient one, and not irritating. I drop it freely between the eyelids, when the *villi papillæ*, or glands of the conjunctiva lining the lids, are turgid or enlarged.

Of the use of applications positively escharotic, in both the acute and chronic stages of purulent ophthalmia, I have already expressed some opinion; and have now only to suggest a consideration of the nature of an escharotic so administered. It is, I conclude, assumed to be an agent operating as a chemical solvent of the structure to which it is applied, and being so, must be very cautiously used. I am not here alluding to its use in progressive ulceration of the conjunctiva, or to granular lids, but to its use as a dressing to the entire conjunctival surface; and as such, its true effect should be well understood. Here, however, a question arises as to the fact of escharotics being so used at all, and it must be admitted that, unless strong solutions of nitrate of silver are of this nature, few other solutions used, if any, operate in this way. Saturated solutions of alum or acetate of lead are certainly not chemically escharotic; neither perhaps are saturated solutions of sulphate of zinc or sulphate of copper, but strong acids, alkaline solutions, and lime suspended in water, are; although not medicinally used. I have said elsewhere that a solution of nitrate of silver containing thirty grains or less in the ounce of water, is escharotic, because, if repeatedly brushed over the surface of an everted eyelid, a gray pellicle is produced; yet such a solution may be dropped into the eye without burning the conjunctiva, and perhaps even a stronger solution might be so applied without destruction of surface. The ointment recommended by Mr. Guthrie, being ten

grains of nitrate of silver triturated with a drachm of lard, is also probably escharotic; although more or less of the nitrate must be decomposed by the addition of fifteen drops of diacetate of lead added.

I have here, as well as in other places, been endeavouring to direct the attention of practitioners to a more rational practice in the use of local applications to the conjunctiva; because, notwithstanding the length of time they have been used, they are generally administered empirically, and without a proper consideration of their exact nature. The subject is one which, perhaps, might be more effectually handled in a distinct essay than in a practical treatise, because it is one of importance in relation to other departments of surgery; but if it leads practitioners to reconsider their opinions respecting the comparative value of *collyria*, the inquiry cannot fail to be beneficial. While alluding to the subject, it may, however, be useful to remind them that these direct local applications may be often not only unnecessary, but absolutely mischievous. I have no doubt that recovery is often interrupted by the use of them, and that many of the worst cases of what is called chronic ophthalmia are reduced to that condition by premature and injudicious irritation in this way. It is true that, in general practice, the prejudices of the people do not permit a fair trial of less active interference, but in hospital and dispensary practice, and especially in the military department, an opportunity of doing so is afforded. Of the method of applying *collyria*, lotions, or solutions to the conjunctiva, it is necessary to offer a few observations, the importance of a proper administration of remedies in this way being generally overlooked. A drop of fluid placed on the surface of the eye, between the two margins of the eyelids, must have but a very limited operation, narrowed as the exposed surface is by the contraction of the orbicular muscle, and confined as the fluid is from spreading between the lids by the accurate fitting of the palpebral cartilage to the eyeball. To secure a full exposure of the whole conjunctiva of both the eye and the lids to the contact of the fluid, it should be introduced beneath the upper lid at the outer angle by separating the two surfaces and introducing a large drop from a full-sized camel's hair pencil between them. By laying the thumb or finger on the skin between the lid and brow, and pushing it up over the margin of the orbit, a space is made between the lid and ball, into which the fluid should be dropped, and from this it will spread over the whole surface. If a more complete saturation of the upper lid is required, it must be everted and repeatedly brushed over with the solution.

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39. *Fungoid Tumour of Orbit—Extirpation—Death.*—Mr. J. B. Fife presented to the New Castle and Gateshead Pathological Society (Nov. 9th, 1850) a fungoid tumour of the orbit which he had removed, a few months previously, from a child æt. 4, who was first noticed to be blind a year before the removal of the disease. At this time a bright metallic spot was seen at the depth of the eyeball. Little disturbance of the health took place for several months after this, and the eyeball remained in much the same condition until two months previous to the operation, when it began sensibly to project from the orbit, and to be inflamed and painful. The eyeball from this time was rapidly pushed out of the orbit by a lobulated, soft, fungoid tumour, and in two months projected beyond the edges of the orbit with the eyeball on its anterior surface. The child suffered great pain, and as the friends were wishful to have an operation performed, it was removed in the usual way: the hemorrhage, which was profuse, was restrained by plugging the orbit firmly. The wounds of the eyelids and of the orbit healed kindly, and the patient progressed favourably until three months after the operation, when, without any external signs of the return of the disease, the child was seized with convulsions, and died suddenly—no doubt from an extension of the disease in the cranium. The tumour was of a soft, spongy, fungoid consistence, devoid of any appearance of fungus hæmatodes, and consisted almost entirely of small granular and nucleated cells, contained in the meshes of a soft, cellular, fibrous-like stroma, which, on maceration, readily allowed the cells to escape, and the tumour to collapse to a very small size. The cells were round or oval, about half the size of pus-globules, all of them preserving a pretty nearly equal size, and possessed of one or more

nuclei, and numberless minute shining granules, both in the cells, and floating in the fluid containing them. The fibrous stroma consisted of fibres, many of them containing nuclei, more or less resembling caudate cells. The tumour evidently sprang from the optic nerve, and appeared to have passed along it into the optic foramen. The interior of the eyeball was filled with a thick, white, paste-like fluid, which consisted of cells similar in all respects to those compassing the tumour, presenting, however, no trace of fibres, and occupying the position of the humours which were altogether absorbed.—*London Med. Gaz.*, Feb. 1851.

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40. *Melanotic Tumour of the Orbit removed.*—Mr. J. B. Fife exhibited to the New Castle and Gateshead Pathological Society a melanotic tumour removed from a man aged 51. Loss of vision, and a slight projection of the eyeball, were the first symptoms remarked by him twenty-five years ago, when he became a patient of Sir J. Fife, who cured him by the use of iodine. The eyeball since that time had been very prominent at two other periods, but was each time replaced by the same remedies. Two years ago it again began to project from the orbit, and notwithstanding all efforts to reduce the tumour that was evidently forcing it forwards, the eye continued to advance, and at the time of the operation was projected beyond the eyelids by an elastic fungoid-like tumour (covered by the thickened and congested conjunctiva), which encircled the eyeball in such a manner that the cornea was alone visible. Until within a few months preceding the operation, no pain accompanied the progress of the disease.

The whole of the contents of the orbit were removed without difficulty. The hemorrhage was very profuse, but quickly ceased on the plugging of the cavity. The tumour entirely filled the orbit, and on being cut open was found as black as coal; it was invested with a covering of cellular tissue, which also ran into the interior of it, separating the whole into lobules: in structure it was soft, and consisted of a cellular tissue, infiltrated with the pigment matter, which was readily washed out of the tissue when incised. The pigment matter under the microscope exhibited innumerable dark-brown organic granules, existing singly, or aggregated together in compound granular cells of great variety of size and form, together with numerous oil-globules, and round and oval colourless cells, about the size of pus-globules, with faint outlines, containing in their interior small shining granules, and occasionally other smaller cells of similar appearance to themselves; also cells of varying size, with thick, dark-brown walls, only very slightly transparent, and containing in the cell-walls numerous dark granules, and occasionally nuclei. These latter cells appeared as if they were the colourless cells transformed by growth and the acquisition of pigment into the peculiar cell of melanosis. The operation was performed three months ago, and the patient reports himself as being quite well, the wounds having healed.—*Ibid.*

[A sufficient time has not elapsed since the operation to pronounce it a successful one.—I. H.]

MIDWIFERY.

41. *On Compression of the Skull of the Infant during Birth, and its Effects.*—Dr. Ogier Ward read a paper on this subject to the Royal Medical and Chirurgical Society (March 11th, 1851). The immediate object of the author of the paper was to draw attention to the compression of the bones of the skull during parturition, and the influence which this exerted on the after condition of the child, whether physical or mental. The subject had been, he considered, much neglected, and he had therefore been induced to bring it before the Society. After stating that he distinguished the deformity produced by its situation, and the bone or bones more immediately implicated in the abnormal condition, he proceeded to enumerate the immediate and remote consequences of the pressure. These consisted of symptoms of imperfect cerebral develop-

ment, and its consequences, together with a train of dyspeptic symptoms, of which flatulence was the most prominent. He also considered that epileptic convulsions and paralysis might result from the same cause. After referring to the influence which Foville attributed to the strange head-dress of the children in Normandy in the production of insanity, the author threw out the hint that compression exerted on the head during parturition might have a similar effect. With respect to the treatment of the effects of compression, the author recommends that when the child is born asphyxiated, free inspiration should be established as quickly as possible; and to effect this, he advises that the child should be made to cry by birching it with a single twig, &c.; he states the bones of the head may be seen to expand immediately that free respiration is established. He considered that manipulation of the bones of the head was of no service in these cases, unless the whole head was affected. The paralysis and other results which he had enumerated were to be treated in the usual manner, regard always being had to the immediate and peculiar cause of the affection. In the discussion which ensued, the questions mooted had reference chiefly to one point in the paper. Did the pressure exerted on the head by parturition really have such effects as those described? On one side it was contended that such pressure was injurious in the manner described by the author; and cases were related in point to show that such was the fact; in these cases, convulsions and other disorders of the nervous system were present. The experience of Foville also was alluded to with regard to the compression which was exerted by the Norman cap on the heads of children. Two fingers could be put into the indentation so produced. Foville had regarded this as a frequent cause of mania. It was asked whether the pressure on the head of the Carib had any influence in the production of mental disease? On the opposite side, however, cases were referred to, in which deformities existed similar to those described in the paper, but the children so affected had no sign or symptoms of disease about them, and the distorted parts became quite restored without interference. In support of the opposition to Dr. Ward's conclusion, the condition of the child's head after delivery was referred to. Frequently after difficult or protracted labours, the heads were of all shapes, and yet how quickly, by the efforts of Nature, did the heads assume their proper form! Even large extravasations of blood were removed in an incredibly short space of time.—*Lancet*, March 15th, 1851.

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42. *Fatal Case of Inversion of the Uterus, with Attached Placenta, occurring under the management of a midwife immediately after delivery.*—Dr. E. Smith related to the Medical Society of London, May 17th, 1851, a case of this accident. "The subject of it was thirty-five years of age, of somewhat large build, and of full habit, and was apparently more sensitive than females are in general. She enjoyed a fair share of health, but was always disposed to complain, and her scrofulous temperament evinced the lack of a robust system. She was ill fitted to repel the influence of exhausting agents. She was delivered of her second child at eleven P. M. on May 5, after a labour of less than the average suffering, and of only five hours' duration. I was called to see her at a quarter past eleven P. M., and found a tumour of about ten inches in diameter, projecting from the external parts. The placenta was chiefly attached to the anterior part, but prolongations of it surrounded the whole tumour in such a manner, that a central cup-shaped concavity existed, of two inches in diameter, and three-quarters of an inch in perpendicular depth. On examination, this tumour proved to be the inverted uterus, to which the placenta was still perfectly adherent. The funis was broken into two parts; that which was attached to the placenta being about eight inches in length, and the portion which was separated being about twelve inches in length. There did not appear to be more hemorrhage than is usually observed when the placenta is detached and expelled in the ordinary mode. She was quite conscious, and fully alive to all that was transpiring, and was not apparently aware of the existence of imminent danger. Yet her pulse could only be felt at intervals, and then only during two or three beats, which were not remarkably frequent. I instantly sent messengers to request the assistance of two neighbouring practitioners, and in the mean time endeavoured to return the uterus, with the placenta still attached,

within the parts, as a preparatory step to the reduction of the inversion. The effort was ineffectual, and the anterior surface of the placenta becoming ruptured at one point, a considerable gush of blood followed. My medical friends arrived in over five minutes after I had first seen the case, and we determined to peel off the placenta first, and then return the uterus. The first was effected by Mr. Lucas, without any further loss of blood, and the latter was also accomplished without much difficulty. The pulse was still almost imperceptible, but the mind was collected and calm. No noises were complained of, nor were there the slightest indications of faintness or spasm. Pure brandy was administered freely, in about half-ounce doses, so frequently, that half a pint was exhibited in three hours, yet no improvement of any but the most temporary character was effected in the circulation. A drowsiness began to steal over the senses in about an hour after the womb was replaced, which the patient attributed, erroneously perhaps, to the effects of the brandy; but from this she could be aroused with more and more effort as the progress of the case advanced. At about one P. M., a sharper state of the countenance became evident, and this increased so much, yet without any complaint whatever, that at from two to three P. M. she had lost her own distinctive features. I frequently introduced my fingers within the patulous os uteri, and placed my hand upon the abdomen, and observed that the uterus remained tolerably contracted, and that at no time was there the slightest hemorrhage. Finding that no benefit whatever had resulted from the administration of the brandy, I again requested the advice of Mr. Lucas at half-past two A. M., when it was determined to move the patient very carefully, but to the extent of relieving the discomfort of the position, and to administer ether. This was done, and the pulse seemed to gain in firmness and steadiness for about a quarter of an hour; but the dullness of the senses still continued. At the end of that period she suddenly appeared to become more exhausted, yet remaining somewhat conscious, and whilst endeavouring to swallow a small quantity of brandy, deglutition failed, and she sank gradually in a few minutes.

The post-mortem examination showed a healthy condition of all the organs of the chest and abdomen, but all were drained of blood. The heart and great vessels were empty. The uterus was properly replaced and empty, having no clots of blood whatever, but some slight remains of the placenta; the cavity was about five inches in the transverse, and eight inches in the longitudinal diameter; the tissue of the uterus was loose and flabby, and the walls at the fundus were fully half an inch in thickness. At the inquest I gave as my opinion of the cause of death, that the patient had died from the shock upon the nervous system, induced partly by the loss of blood and partly by the violent inversion of the uterus.

The points of interest in this case appear to me to be the following: 1st. A confirmation of the ordinary position of the placenta. 2dly. The fact that a bloodless condition of the whole system was induced by an amount of hemorrhage which did not appear to any person present to be considerable, and without any other symptom than pulselessness. The drowsiness which was eventually induced might at least, in some degree, be attributed to the alcohol. At any rate, this and the sharpened features more readily pointed to the nervous than to the circulating systems. 3dly. Considering that the symptoms were rather those indicating a shock than exhaustion from hemorrhage, would it have been prudent to have so far suspended the administration of the brandy as to administer ammonia, ether, or other nervous stimulants? 4thly. Dr. Denman and Dr. Burns advise that the uterus, with the attached placenta, be returned. Dr. Merriman also gives the like counsel, but he mentions an instance in which he first detached the placenta, and the patient did well. It is highly important that some definite rule should be laid down by the profession; for if it be judged best to detach the placenta, it will be injurious to lose time in endeavouring to return it; if it be deemed proper to return the mass, it cannot be right to run the risk of alarming hemorrhage by first detaching the placenta. 5thly. What direct evidence can be adduced to show the guilty interference on the part of the midwife? Cases are recorded of inversion of the uterus having occurred from the mere dead weight of the attached placenta; also from distension of the alimentary canal, or of some sudden action of the abdominal muscles, and there-

fore blame does not, of necessity, attach to the attendant. It is true that, until the placenta is detached, the hand ought not to be for a long time apart from the womb, and in cases where inversion has thus occurred, it has not been so complete as in this case; but yet the admission of the possibility of such an occurrence renders it imperative that direct evidence of a guilty interference or neglect should be established.

The evidences in the case are—1. The admission of the midwife that she attempted to remove the placenta within a quarter of an hour after delivery. 2. A further admission that she did use some force, but that it was to a very slight extent. 3. The rupture of the funis. 4. The persistence of the uterine contraction after the uterus had been returned, and when that organ was almost bloodless and the system exhausted, is *primâ facie* evidence that the inversion had not resulted from the absence of contraction. Still the link was wanting to show that the midwife had used improper force, and thus she escaped punishment. 5. Was transfusion indicated in this case?—*Lancet*, May 24, 1851.

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43. *On Diarrhœa as a hitherto unnoticed symptom of Menstruation, and on the use of Purgatives at the different Epochs of the Menstrual Function.*—Dr. Tilt, in a paper read before the Medical Society of London (Feb. 22, 1851), premised that, not having found any description of catamenial diarrhœa as a symptom of menstruation, in the classic work of Friend and Brierre de Boismont, he concluded that it was not generally known to the profession, except as a morbid complication of the function. He then proceeded to inquire into the nature of that catamenial diarrhœa, whether it occurs—

1. At the prodroma of menstruation.
2. During its regular establishment.
3. At its cessation.

1. As a symptom of the prodroma of menstruation, diarrhœa scarcely ever occurs. It was noticed but once in 161 cases.

2. As a symptom of regularly-established menstruation, it occurred in 88 instances out of the 161 who were carefully interrogated relative to this point. It did not occur in 72 cases; and in those in which it did occur, it preceded the menstrual flow in 45 cases, it accompanied it in 31, it both preceded and accompanied it in 10, and in two instances it neither preceded nor accompanied, but habitually followed, the menstrual flow for two days; and where there was precursory diarrhœa, the bowels were afterwards in general *costive* until the cessation of the catamenia.

3. As a symptom of menstruation at its cessation, diarrhœa occurs much less frequently than is generally supposed, for it was only found in eight per cent. of such cases. With respect to the nature of the diarrhœa, it is generally unattended by pain, but sometimes nausea and slight colics precede it for two or three days. In one patient, Dr. Tilt found these symptoms continue for eight days previous to the appearance of diarrhœa. When it occurs at the change of life, it generally appears at irregular intervals, though it may adopt the regularity of the menstrual function. As a general rule, however, Dr. Tilt is of opinion that, when diarrhœa has habitually accompanied menstruation, there is, at the change of life, a gradual diminution of both discharges, the cessation of one marking the termination of the other.

From the preceding facts, Dr. Tilt deduced the physiological inference, that, for the performance of the function of menstruation, the ovaries not only determine the menstrual secretion from the womb, but also often call into consentaneous action most of the organs, which, being subsidiary to nutrition, are animated by the same ganglionic nervous system, and particularly the intestines, with which they are placed in such close juxtaposition. He then laid down the rules which he considered to be those which should be adopted in the administration of purgatives:—

1. During the prodroma.
2. During the regular establishment.
3. At the cessation of menstruation.

1. Use of purgatives during the prodroma of this function.

Dr. Tilt is of opinion that purgatives should not be given at this period, be-

cause they were neither sanctioned by experience nor confirmed by his inquiries.

2. Use of purgatives during fully-established menstruation.

As Nature herself has often prefaced the menstrual crisis by a premonitory diarrhœa, so experience teaches that purgatives may be advantageously employed when defective menstruation does not depend on any serious organic lesion. The great point, Dr. Tilt said, in the administration of purgatives, is not to interfere with the menstrual type; for, if this may be done with impunity in a very small class of women, it cannot be so in the majority. Brisk purgatives, given a few days before the symptoms which precede menstruation, often anticipate it by a few days, and thus vex Nature in one of her most constant laws, often producing permanent disorders of that function. An inquiry into how many days before the menstrual flow the premonitory diarrhœa used to appear, or, if the patient has not that symptom, the date of appearance of other menstrual symptoms, will be a sure guide as to the fit time for giving purgatives.

Dr. Tilt next touched on the value of the purgatives in amenorrhœa and in chlorosis, relating that a friend of Morgagni never gave anything, in such cases, but small doses of aloes; and that Dr. Hamilton, of Edinburgh, depended exclusively on purgatives for the cure of chlorosis. Dr. Tilt, however, thought it best not to confide in purgatives alone, but to let them form the initial part of the treatment, as in Nature diarrhœa often forms the initial part of menstruation; and therefore to begin with a decided shock on the system of nutrition by an emeto-cathartic, followed by steel and bitters; but if he finds that the appetite does not improve, and that the bowels remain sluggish, he puts aside the steel and bitters, and seeks to break in on a perverse concentration of forces by giving another emeto-cathartic.

At the period so appositely called by women the dodging time, it is injudicious to give purgatives just before the menstrual epoch; for, says Dr. Tilt, they might increase the flow Nature seeks to diminish; therefore it is more prudent to prescribe the frequent use of the milder opening medicines, so as to diminish, by degrees, the plethora of the abdominal viscera.

3. Use of purgatives after the cessation of menstruation.

At this period of life purgatives must be given habitually, for the intention is, not to re-establish periodical discharge, but to diminish plethora, and the necessity for that plethora seeking for any other less manageable seat. As regards what purgative should be given, it is as well, in general, to prescribe the medicine best tolerated by the patient. The soap-and-aloes pill of the Pharmacopœia, ordering five or ten grains to be taken at dinner, Dr. Tilt frequently recommends. He has never seen hemorrhoidal affections *caused* by this frequent use of aloes, but often *relieved* by it; and his experience on this point he has found confirmed by that of Avicenna, Stahl, Giacomini, and Cullen. The flour of sulphur alone, or else to each drachm of it a drachm of sesquicarbonate or biborate of soda, and sometimes from five to ten grains of ipecacuanha, may be given in quantities of from one to three scruples of these powders, to be taken once a day, in milk, so as to act mildly on the bowels, which is one of the chief things required at the cessation of menstruation.

Several fellows took part in the discussion on Dr. Tilt's paper. Reference was made to a paper by Dr. Butler Lane, to show that the views advanced by Dr. Tilt had been somewhat anticipated by that gentleman. However, it was admitted that he had rendered a service to science, by the facts which he had advanced in his paper. The debate referred chiefly to two points—the physiological and the pathological ones, to which the paper referred. Various opinions were expressed as to the mode in which diarrhœa might be supposed to act in retarding, interfering with, or promoting, the menstrual discharge. Some difference of opinion existed as to the indications presented for treatment. In his reply, Dr. Tilt stated that he had not seen the essay of Dr. Butler Lane.—*Lancet*, March 15th, 1851.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

44. *Case of Rapid Delivery.* By B. W. M'Cready, M. D., Professor of Materia Medica and Pharmacy in the New York College of Pharmacy. (Communicated to Dr. T. R. Beck.)—I was called in haste about three o'clock in the morning of May 6th, to see Mrs. M'E. I found her supported by a friend, in a sitting posture, over a pot de chambre. She had been taken in labour about an hour previously, had risen to evacuate the bowels, and while sitting on the vessel the child had been born. Believing it to be still connected with her body, she had been afraid to rise, and had remained in her uneasy position till my arrival. Finding that the placenta had already come away, I immediately lifted the patient into the bed, and, removing the child, the whole of the head and part of the body of which were immersed in urine, after dividing the cord, and drying the child's face, I commenced efforts for its resuscitation. In a few minutes I was rewarded by observing a faint effort at respiration, and in half an hour the child cried vigorously.

According to the account of the mother, the child was born immediately after the husband had left the house to request my attendance. As he had to walk nearly a quarter of a mile to my residence, and to return the same distance, we may safely conclude, including the time I occupied in dressing, that he was absent at least fifteen minutes. During all this time the child's head had been under water.

It is to be noticed too that, though it was the patient's third child, she was quite unaware that the placenta had come away, and that neither she nor either of the attendants had presence of mind enough to remove the child from its dangerous position.

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45. *Death from the External Application of Arsenic.* By B. W. M'Cready, M. D., Prof. of Mat. Med. &c. in the New York College of Pharmacy. (Communicated to Dr. T. R. Beck.)—In the latter part of August, 1844, I was called to the family of a poor woman, residing in Walker St. I found two children, about five and seven years of age, with their faces swollen and œdematous, particularly about the eyes, and the skin red and shining. The scalp was covered with a copious eruption of porrigo favosa, and careful examination discovered upon it, adhering in points to the pustules and about the roots of the hair, some reddish ointment. On questioning the woman, she stated that, on the day previous, she had applied at the dispensary to have her children treated for the eruption, and had been furnished with the ointment in question (ung. hydrarg. oxyd. rubr.). This had been rubbed thoroughly into the affected parts, and had been followed by the swelling and redness of the face. The next morning the children appeared much better. She now informed me that, following the advice of an old woman, she had obtained sixpence worth of arsenic (arsen. alb.), had mixed it with a gill of gin, and rubbed it well into the children's heads just previous to the application of the ointment. At the same time a younger child (about two years of age), likewise affected with P. favosa, was shown me, when a similar course had at the same time been pursued. This child's countenance was pale, and there was no sign of inflammation about the scalp, but it was suffering from diarrhœa and tenesmus, with great weakness of the lower extremities. The same night it died, its lower extremities having first become completely paralyzed. At the coroner's inquest, the old woman, who had advised the treatment, testified that she had repeatedly used the same means in scald head, and always without bad consequences, and with the cure of the eruption. The mother stated that she had on one previous occasion applied the arsenic, and though the application was followed by some swelling, this soon subsided, and the head seemed much better. The quantity of arsenic obtained must have been about half an ounce, and this, having been previously added to the gin, and the bottle well shaken, had been rubbed freely on the scalps of the three children. It will be noticed that, in the child that died, the application was followed by no marks of local inflammation. No post-mortem examination was made. The other two children speedily recovered.

46. *Medical Evidence, in favour and at the request of the Prisoner.*—(See *Beale's Med. Jurisprudence*, edition of 1850, vol. ii. p. 911.)

Central Criminal Court, London, Aug. 22, 1848. *Regina* v. *Spry & Dore.*

The coroner's jury having returned a verdict of wilful murder against the prisoners, Clarkson applied on their behalf, previous to the trial, that Dr. Taylor might be permitted to inspect the stomach of the deceased and its contents, which were at present in the keeping of a police inspector. He considered it absolutely essential to the interests of the accused that this should be done, in order that they might be prepared at the trial with evidence, which nothing but a minute examination could furnish.

The Recorder. This is a very unusual application, and one that I am not quite sure the court has jurisdiction to entertain; but as it appears to be made in furtherance of the interests of justice, I think I may take upon myself to make the order. The examination, however, should take place in the presence of the officer who has custody of the stomach, as well as in that of the medical gentleman who examined it on the part of the prosecution. The expense must be borne by the prisoners, and I think the coroner should have notice of the time and place of the examination. I have the less difficulty in granting the application, because the judge would no doubt, at the trial, stop the case until such examination had been made.—*Cox's Reports of Cases in Criminal Law*, vol. iii. p. 221. T. R. B.

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47. *Wounding.*—The following are cases apparently parallel, yet not without anatomical reasons to justify the legal decisions:—

Central Criminal Court, January, 1848. Before Mr. Justice Patteson. *Reg.* v. *Jones.*—The prisoner was indicted for wounding with intent to do grievous bodily harm. Bedkin, for the prosecution, stated the nature of the wound to be as follows: The prisoner had come behind the prosecutrix, and given her a violent kick in the private parts, and that had been followed by an occasional discharge of blood, mingled with urine; but the surgeon could not undertake to say from what precise vessels the blood originally flowed.

Patteson, J. Then I do not think the more serious charge in this indictment sustainable. There may have been no lesion of any of the vessels at all. Blood may be discharged from those parts simply from natural causes.

Ibid. Feb. 3, 1849. Before Mr. Justice Creswell. *Reg.* v. *Waltham.*—The prisoner was indicted for wounding the prosecutor, with intent to do him grievous bodily harm. It appeared from the evidence that the prosecutor, who was a policeman, while endeavouring to separate the prisoner and a man with whom he was fighting, received from the former a violent kick in his private parts. From the testimony of the surgeon, it appeared that the external skin was unbroken, but that the lining membrane of the urethra was ruptured, which caused a small flow of blood mingled with urine, for two days. That membrane is precisely the same in character as that which lines the cheek and the external and internal skin of the lip.

Perry (for the prisoner) objected that this was not a wounding within the statute, and cited *Regina* v. *Jones;* that case was very similar to the present; there is no external wound.

Creswell, J. If the cases were similar, I should abide by the ruling of Mr. Justice Patteson, but there is a great difference between them. I think this is a wounding within the statute.—*Cox's Criminal Law Cases*, vol. iii. pp. 441, 442. T. R. B.

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48. *Rape.*—The *Queen* v. *Ryan.* The prisoner was indicted for rape. The prosecutrix was an idiot, and when asked questions in the witnesses' box, was evidently unconscious of their import, and not in a condition to understand right from wrong. Platt, B. interrogated her father as to her general habits, whether they were those of decency and propriety, and an answer in the affirmative was returned.

Platt, B. in summing up: The question is, did the connection take place with her consent? It seems that she was in a condition incapable of judging, and it is important to consider whether a young person, in such a state of incapacity,

was likely to consent to the embraces of this man; because if her habits, however irresponsible she might be, were loose and indecent, there might be a probability of such consent being given, and a jury might not think it safe to conclude that she was not a willing party. But here the presumption is that the young woman would not have consented, and if she was in a state of unconsciousness at the time the connection took place, whether it was produced by any act of the prisoner, or by any act of her own, any one having connection would be guilty of a rape. If you believe that she was in a state of unconsciousness, the law assumes that the connection took place without her consent, and the prisoner is guilty of the crime charged. The prisoner was convicted.—*Cox's Criminal Law Cases*, vol. ii. p. 115. T. R. B.

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49. *Rape.—Rex* v. *Camplin.* The details of this case will be found in *Beck's Medical Jurisprudence*, last edition, vol. i. p. 183. I find the following note in the first volume of *Denison's Crown Cases Reversed*, which seems important to the full consideration of this trial:—

"Mr. Baron Parke has kindly furnished the editor with the following note of the reasons for the opinion of the judges in the case of *Rex* v. *Camplin*:—

"Of the judges who were in favour of the conviction, several thought that the crime of rape is committed by violating a woman when she is in a state of insensibility, and has no power over her will, whether such state is caused by the man or not, the accused knowing at the time that she is in that state, and Tindal, C. J., and Parke, B., remarked that, in Statute of Westminster, 2, C. 34, the offence of rape is described to be ravishing a woman 'where she did not consent,' and not ravishing *against her will*. But all the ten judges agreed that in this case, where the prosecutrix was made insensible by the act of the prisoner, and that an unlawful act, and when also the prisoner must have known that the act was against her consent at the last moment that she was capable of exercising her will, because he had attempted to procure her consent and failed, the offence of rape was committed."

The other three judges did not think that this could be considered as being sufficiently proved. T. R. B.

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50. *Strangulation in Utero.*—Dr. Freney, of Remenville, communicates the following:—

On the 9th of October, I was called to attend a female, aged forty-three, in labour. She was small, but well made, and the mother of five children. The pains were regular and strong, the head presented and was low down, and in a quarter of an hour the child was born. It was motionless, the flesh soft and the lips red. The umbilical cord passed twice round the neck, and then under the left thigh, in such a manner that with every motion in the womb of the mother, the traction was immediately increased on the neck. On removing the circumvolutions of the cord, Dr. Freney was surprised to find a depression in the neck, corresponding with the size of the cord, and this was paler than the surrounding skin. After fifteen minutes of incessant efforts, respiration appeared, and the child is now living.

Dr. Freney inquires what would have been the opinion concerning these appearances in a case supposed to be criminal, particularly as he was obliged to use the insufflation of air into the lungs.

The answer of the editor is quite satisfactory. The present is a remarkable and an uncommon case. It illustrates the possibility of the umbilical cord acting as a cause of strangulation in the womb of the mother. Still the circular impression observed is only the semblance of what would have resulted from the actual application of a cord. There was no ecchymosis; the furrow was neither deep nor unequal, as is seen in ordinary strangulation. It is impossible, as the child survived, to show that the furrow did not in this instance take the appearance of parchment; or that the subjacent cellular tissue was injured. Each of these is seen in instances of criminality.—*Journal de Médecine et de Chirurgie*, Nov. 1850. T. R. B.

51. *Two Cases of Poisoning by Arsenic, and Remarkable Recovery under the free Use of Tartarized Antimony.*—The subjoined cases occurred recently in the practice of Mr. Beardsley, of Heanor, formerly a student at Guy's Hospital. They illustrate forcibly the propriety of producing an early expulsion of the poison from the stomach by the aid of a quickly acting emetic.

Case 1.—The first case was that of a little boy, six years old, who swallowed a teaspoonful of the white arsenic of the shops. It was left on the floor of the house during the night, for the crickets to eat, and the child getting up first in the morning, found it, and eat it all up. In a very few minutes he was taken ill: there was vomiting; pain at the stomach; excessive thirst; cold extremities; quick and feeble pulse. At this juncture the parents had some vin. ant. tart. in the house, which they administered, and the child appeared better. When Mr. Beardsley arrived and was informed of this, he gave a full dose of the antim. tart.; vomiting was freely excited; the bowels were rapidly opened, and the child recovered with no further bad symptoms. The child was not seen to eat the arsenic, and possibly some might have been spilled, but none could be found, and the child was followed down stairs as quickly as possible; but the poison had been swallowed.

Case 2.—The next case was that of a girl twenty-two years of age. She bought two drachms of white arsenic, with the intention of poisoning herself. She was observed all Monday to be very unsettled, and refused food at dinner. Just before tea she purchased the arsenic, and, instead of tea, she put the arsenic into a cup, and poured hot water over it, and drank it off. She was immediately seized with violent pain in the region of the stomach; burning heat in the throat, and syncope. Mr. Beardsley was immediately sent for. When he saw her, which was only *half an hour* after she had taken the arsenic, she had cold extremities; very anxious look; pulse quick and hurried; violent pain in the stomach and bowels, which was very much aggravated on pressure.

The fauces had been tickled to excite vomiting, but ineffectually; and an ounce of castor oil and some milk had been administered. An emetic of sulphate of zinc was now given to her, but as this did not act, six grains of emetic tartar were subsequently administered. Most copious vomiting ensued, and the patient immediately said she was better. She stated that the ejected matter was similar in taste to that which she had taken in the cup, and that it was *sweetish*. Warm water and more emetic tartar (three grains) were administered, and she again vomited two or three times. She took two more doses of tartar emetic, and then violent purging, as well as vomiting, ensued. Next morning she was better; the pain had entirely left her. She took the remainder of the antimonial mixture, and she perfectly recovered; in fact she was almost well on Wednesday; she only felt debilitated on the Tuesday.

In this case, *two drachms* of powdered arsenic were taken in *warm water*, on an *empty stomach*. The treatment was what Dr. Beck says should never be adopted, and yet the recovery was rapid in both cases. It may be mentioned that the girl had some melted butter given to her, before vomiting was established, *i. e.* before the emetic tartar was administered.

Remarks.—The use of tartarized antimony as an emetic has been generally condemned in cases of poisoning, because it has been supposed to have a tendency, during the nauseating stage, to promote the absorption of a poison. The above cases, and some others which might be quoted, show that this danger is of a hypothetical kind, and based on physiological principles not applicable to the treatment of such cases. If tartarized antimony aids absorption, it very quickly promotes the expulsion of the poison by vomiting; and the latter mode of operation is much more beneficial than the former is injurious. Better evidence of this could not be afforded than that yielded by the two cases here reported. Case 1 was that of a child only six years old. The quantity of poison swallowed was a teaspoonful, about 150 grains, an enormous dose when we consider the age of the patient. Further, it was swallowed in the early part of the morning, while the stomach was empty; and the rapid action of the poison was shown by the very early occurrence of the symptoms. Admitting that the whole teaspoonful of arsenic was not taken, it is quite clear that enough was swallowed to cause death, and the good effect of the tartar emetic was well indicated by its removing the early collapse.

—I have taken the above narrative from a number of the *London Medical Examiner*, which Dr. Hays was kind enough to send me. Subsequently, I have found that it is correctly copied from the *Guy's Hospital Reports*, vol. vii. part 1, p. 203.

I regret extremely that Mr. Taylor should have taken occasion to represent these TRIFLING (I use this term considerately) *cases* in an offensive manner as respects myself. In everything I have written on the subject of Medical Jurisprudence, I have endeavoured to do him and have done him ample justice. Due credit has been given, whenever anything original with him could be discovered. I challenge on this point the most careful scrutiny, commencing with his work entitled "ELEMENTS OF MEDICAL JURISPRUDENCE, *by Alfred S. Taylor*, vol. i. 8vo., London, 1836."

In the first edition of my work entitled "*Elements of Medical Jurisprudence*," published in 1823 (vol. ii. p. 254), when considering the proper treatment in cases of poisoning by arsenic, I said "*Tartrate of antimony should never be given.*" I continue of the same opinion still, and accordingly made the same observation in the 10th edition, published in Dec. 1850, vol. ii. p. 554: "*Tartrate of antimony should never be given.*" I warn every AMERICAN physician who reads this, that the recovery of a person in such a case is merely an *escape*, and that, although two may have recovered (from fortunate circumstances, such indeed as scarcely ever occur in instances of poisoning by arsenic), yet the third case, in which pure tartrate of antimony is administered, will probably prove fatal. But this, after all, is not the matter brought before the medical public by Mr. Taylor.

"The treatment" (he remarks) "was what Dr. Beck says should never be adopted, and yet the recovery was rapid in both cases." If Mr. Taylor had been actuated by the proper feelings, he would have written a far different sentence. He would have said, "The treatment was what Dr. Beck says should never be adopted," (*and in which statement he was perfectly justified by at least the negative testimony of Foderé, Orfila, Christison and others, and in particular by my own writings,*) "and yet the recovery was rapid in both cases." I do not add Paris and Fonblanque to the above authorities, for reasons which I shall presently assign.

The unjust and uncalled for remark of Mr. Taylor has induced me to look over the authorities consulted in preparing the first edition of my book. Foderé advises the use of warm water to promote vomiting, and, if this fail, then the use of the stomach-pump. Gordon Smith says that some do not hesitate to employ the most active emetics, "considering that the irritation of much fluid is an advantage in these cases. Others advocate bland liquids, as warm water, oil, linseed or chamomile tea." Orfila (*Sécours à donner aux Persons empoissonnées*) advises that vomiting should be promoted with many tumblerfuls of sugared water, or of warm or cold water, decoction of marshmallow root, or flaxseed tea. A mixture may also be given of equal parts of lime-water and sugared water.

What says Christison in his work on poisons—a work of some considerable authority in this country, although he may be elsewhere supplanted by later authorities? "If vomiting should be delayed, as often happens, for half an hour or more, advantage ought to be taken of the opportunity to administer an emetic of the sulphate of zinc, with the view of withdrawing the powder in mass before it is diffused over the stomach, and for the same purpose, milk should be drunk both before and after vomiting has begun, as it appears to be the best substance for enveloping the powder, and so procuring its discharge. The patient should never be allowed to exhaust his strength in retching, without a little milk or other fluid in his stomach."

And again, "Even emetics are unnecessary, when vomiting has commenced in consequence of the operation of the poison. When milk in sufficient quantity cannot be procured, strong farinaceous decoctions will probably prove useful," 2d edition, p. 322. The same is repeated in the 3d edition, p. 335, and again in the 4th edition, p. 365.

Is there anything in all the above, advising or recommending, or justifying, or even allowing, the use of tartrate of antimony?

But what says Mr. Taylor, the author of a work on Medical Jurisprudence, and a Treatise on Poisons, concerning this matter? In the first edition of "*A Manual of Medical Jurisprudence, by Alfred S. Taylor, &c., &c.,*" London, 1844, under the head of "TREATMENT" in cases of poisoning by arsenic (p. 143), the following remarks appear: "If vomiting does not already exist as a direct effect of the poison, sulphate of zinc may be exhibited, and the emetic effects promoted by mucilaginous drinks, such as linseed tea. When sulphate of zinc cannot be procured, a good substance for an emetic is powdered mustard, in the proportion of from one to two teaspoonfuls, in a glass of water, administered at intervals. A saponaceous liquid, made of equal parts of oil and lime-water, may also be given. While this invests the poison, the lime acts in some degree as a chemical antidote; although as arsenic is usually taken in the form of a coarse powder, and is very little soluble, chemical antidotes are not of much use. The stomach-pump may be usefully employed; but, unless the patient is seen early, remedial means are seldom attended with success." I pause to inquire whether tartrate of antimony is enumerated among the remedial means of Mr. Taylor.

In the 2d edition of the same *Manual*, London, 1846, p. 131, the same observations as above are repeated in the same words. In the 3d edition of the same *Manual*, London, 1849, p. 73, the same are again repeated; but the following remarks are added: "Mr. Tubbs informs me that, conjoined with the use of the stomach-pump and emetics of sulphate of zinc, he has found great service in a mixture of milk, lime-water, and albumen. Such a mixture is undoubtedly well fitted to envelop the particles of arsenic, and sheathe the coats of the stomach from the irritant action of the poison. This gentleman has sent me the report of no less than nine cases, some of them of a very severe kind, which he has thus successfully treated."

But besides the three editions of his *Manual*, Mr. Taylor has also published a work "*On Poisons, in relation to Medical Jurisprudence and Medicine.*" The copy I own was published in 1848, and is of as large bulk as the third edition of the *Manual*. It is, therefore, just to suppose that it will be more ample, on the subject of poisons, than it would have been possible to notice in the various editions of the *Manual*. Of course, it also considers the "Treatment in cases of poisoning by arsenic." And, at the risk of proving tedious, I will quote all that Mr. Taylor says respecting vomiting. If nothing else, it will prove how easy it is to pour *solid* as well as *liquid* substances from one receptacle into another.

"If vomiting does not already exist as a direct effect of the poison, sulphate of zinc should be exhibited, and its emetic effects promoted by mucilaginous drinks, such as linseed tea, milk, or albuminous liquids. When sulphate of zinc cannot be procured, a good substance for an emetic is powdered mustard, in the proportion of from one to two teaspoonfuls in a glass of water, administered at intervals. A saponaceous liquid, made of equal parts of oil and lime-water, may also be given. While this invests the poison, the lime tends to render less soluble that portion of the poison which is dissolved. The stomach-pump may be usefully employed; but, unless the patient is seen early, remedial means are seldom attended with success. I have known death to occur in a case where every particle of poison was found, on subsequent examination, to have been removed from the stomach. There are many instances on record in which the arsenic appears to have been early ejected by constant vomiting and purging. The recovery has, however, been commonly attributed to the supposed antidote. Mr. Tubbs, however, informs me that, conjoined with the use of the stomach-pump, and emetics of sulphate of zinc, he has found great service in a mixture of milk, lime-water, and albumen. Such a mixture is undoubtedly well fitted to envelop the particles of arsenic, and sheathe the coats of the stomach from the irritant action of the poison."—(p. 333.)

Such were Mr. Taylor's rules of practice, in addition to those that I have previously quoted. But I have not quite done with his "*Treatise on Poisons.*" He furnishes us also with certain *general* remarks on the "Treatment in Cases of Poisoning," and, at page 79, are the following:—

"*Emetics.*—With regard to clearing the stomach, the irritant poisons in

general act as powerful emetics, and therefore all that we have to do is to promote vomiting by the free administration of warm water. In the case of oxalic acid, however, it is desirable to avoid giving much water, as the poison is dissolved and rapidly diffused over a large surface of the intestines, whereby it becomes more easily absorbed. If the vomiting should cease, or if it should not have taken place as an effect of the poison, we must then give an emetic of sulphate of zinc or copper, *i. e.* from fifteen to twenty grains at a dose, and, unless attended with marked effect, this must be repeated every quarter of an hour. IPECACUANHA AND TARTAR EMETIC SHOULD BE AVOIDED, for they are liable to produce excessive nausea, and during this state the poison becomes more rapidly absorbed. Supposing that we have not at hand the sulphate of zinc or copper, there is scarcely a house in the country that does not furnish an emetic in the shape of common mustard. From a teaspoonful to a dessertspoonful of this, in half a glass of warm water, may be given to the patient every five or ten minutes, according to the effect. The back of the throat may be at the same time tickled with a feather. If there should be no mustard, then a thick mixture of yellow soap and warm water may serve as a substitute."

"*It is right to bear in mind that most of these emetic substances are themselves irritant, and therefore a proper degree of caution must be observed in giving them.* In all cases, where the symptoms ARE those of irritant poisoning, the administration of viscid or mucilaginous liquids is advisable. Barley-water, decoction of linseed, flour and water mixed in the form of paste, albumen, or a mixture of oil and lime-water, or yellow soap and water, may be freely given. These viscid substances serve to protect the coats of the stomach, to lock up the undissolved particles of poison, and therefore favour its expulsion during the act of vomiting."

The reader has now before him the varying opinions of Mr. Taylor on the propriety of the exhibition of tartar emetic in cases of poisoning by arsenic, and he will judge, accordingly, of the propriety of bringing forward my name so prominently.

I have, in another place, stated that I would not quote Paris and Fonblanque, and my reason I may now briefly give. Dr. Paris received a certain prize, as the author of the best work on medical jurisprudence, much to the annoyance of Mr. Taylor. I am content with the decision, particularly if the statement of the *London Medical Examiner* be correct, that Mr. Taylor is the editor of the *London Medical Gazette.* I have been at a loss to understand the contemptible remarks and insinuations occasionally appearing in its pages, until my suspicions were thus resolved into certainty. I doubt, however, whether the matter would have rested to the present time, if my friends Dr. Darwall, and particularly Dr. William Dunlap (the "Tiger Dunlap" of *Fraser's Magazine*) had not gone down to the grave. There is another, but recently deceased, who also keenly felt the anonymous quirps and hints of a pettifogging critic, and who only waited for a name, to place the individual in his proper light before the medical public.

In all this, let it be distinctly understood that my appeal is to the American Medical Profession alone. I expect no justice from "Household" cliques of reviewers, whose power and influence are dependent on the frail life of a female, and who use their temporary ascendency in depreciating whatever interferes with their present objects. T. R. B.

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52. *Researches on Gestation.* By M. COSTE.—Of the young females whom I have dissected at the Morgue in Paris, there were quite a number in whom the ovum was either in a state of complete maturation, or detached, and on its way to the uterus. In all of these, I found the uterus lined with a mucous membrane of such thickness that, if its constancy had not proved to me that it was a natural result, I should have deemed it a morbid change.

This membrane, of which I speak, is in a great measure formed by glands opening on the inner surface, by orifices visible to the naked eye. It has a thickness of at least a fourth, and indeed a third, of that of the muscular one, and in some instances it forms circumvolutions or folds pressed upon each other

in the uterine cavity. The anatomical specimens herewith presented will prove this.

In cases of extra-uterine pregnancy, this mucous membrane is still greatly increased. It forms folds as voluminous as the cerebral circumvolutions, and is sometimes not less than ten millimetres in thickness.

It is thus demonstrated that whenever the ovum arrives at maturity in the ovarium, or when it is detached, the uterine mucus undergoes an evolution, to receive it. And this being proved, it remained to ascertain whether the Fallopian tubes were always open throughout their whole length, or whether, at their junction with the uterus, they were closed with a pseudo-morphous membrane, destined to become the deciduous membrane. My observations incline me to the first opinion.

In females dying through suicide from the twentieth to the thirtieth day after conception (as well as in females the condition of whom I have already noticed), the tubes communicate freely with the uterus, and the mucous membrane, having become still more thickened, is also present; but here the ovum, instead of being in the uterine cavity, where I expected to find it, was in fact buried in the coats of the hypertrophied mucous membrane. So manifestly is this shown in the anatomical specimens accompanying the memoir, that, if the uterus alone had been examined, it would have been deemed extremely doubtful whether pregnancy had occurred.

Pregnancy is thus interstitial. The ovum, after passing into the uterus, is probably buried, within a few days, in the mucous membrane of that organ. In a short time, it enlarges and distends its covering—which, in the opinion of M. Coste, finally develops into the three membranes, or folds, which have been noticed by anatomists—the parietal or uterine, the scrotine or placental, and the reflected. These organs are exfoliated after delivery, and, in proof of this, he exhibited specimens taken from females who died in twenty-four hours and in four weeks thereafter.

M. Coste is of opinion that, from the above results, we can explain various phenomena as yet doubtful or undetermined as to their cause, and he enumerates, among these, the hemorrhages that follow delivery, the lochia, and indeed certain cases of sterility. He promises a second memoir.—*Comptes Rendus*, vol. xxxi. No. 17, October 21, 1850. T. R. B.

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53. *Pathological Appearances in Cases of Strangulation or Hanging, Apoplexy, &c.*, (from Professor J. H. Bennet's Clinical Lectures.)—*The Pathological Laws which Regulate Diseased Functions of the Nervous System.*—For the purpose of diagnosis and treatment, it is a matter of great importance to attend to the following generalizations:—

(1.) *The amount of fluids within the cranium must always be the same so long as its osseous walls are capable of resisting the pressure of the atmosphere.* There are few principles in medicine of greater practical importance than the one we are about to consider—the more so, as many able practitioners have lately abandoned their former opinions on this head, and on what I consider to be very insufficient grounds. On this point, therefore, I cannot do better than condense and endeavour to put clearly before you the forcible arguments of the late Dr. John Reid, with such other considerations as have occurred to myself.

That the circulation within the cranium is different from that in other parts of the body, was first pointed out by the second Monro. It was tested experimentally by Dr. Kellie of Leith, ably illustrated by Dr. Abercrombie, and successfully defended by Dr. John Reid. The views adopted by these distinguished men were, that the cranium forms a spherical bony case, capable of resisting the atmospheric pressure, the only openings into it being the different foramina by which the vessels, nerves, and spinal cord pass. The encephalon, its membranes and blood-vessels, with perhaps a small portion of the cerebro-spinal fluid, completely fill up the interior of the cranium, so that no substance can be dislodged from it without some equivalent in bulk taking its place. Dr. Monro used to point out that a jar, or any other vessel similar to the cranium, with unyielding walls, if filled with any substance, cannot be emptied without air or some other substance taking its place. To use the illustration of Dr. Watson,

the contents of the cranium are like beer in a barrel, which will not flow out of one opening, unless provision be made at the same time that air rushes in. The same kind of reasoning applies to the spinal canal, which, with the interior of the cranium, may be said to constitute one large cavity, incompressible by the atmospheric air.

Before proceeding further, we must draw a distinction between pressure on, and compression of, an organ. Many bodies are capable of undergoing a great amount of pressure without undergoing any sensible decrease in bulk. By compression must be understood, that a substance occupies less space from the application of external force, as when we squeeze a sponge, or compress a bladder filled with air. Fluids generally are not absolutely incompressible, yet it requires the weight of one atmosphere, or fifteen pounds on the square inch, to produce a diminution equal to $\frac{1}{20,000}$th part of the whole. Now this is so exceedingly small a charge upon a mass equal in bulk to the brain, as not to be appreciable to our senses. Besides, the pressure on the internal surface of the blood-vessels never exceeds ten or twelve pounds on the square inch, during the most violent exertion, so that, under no possible circumstances, can the contents of the cranium be diminished even the $\frac{1}{20,000}$th part. When the brain is taken out of the cranium, it may, like a sponge, be compressed, by squeezing fluid out of the blood-vessels; but during life, surrounded, as it is, by unyielding walls, this is impossible. For let us, with Abercrombie, say that the whole quantity of blood circulating within the cranium is equal to 10; 5 in the veins, and 5 in the arteries: if one of these be increased to 6, the other must be diminished to 4, so that the same amount, 10, is always preserved. It follows that, when fluids are effused, blood extravasated, or tumours grow, a corresponding amount of fluid must be pressed out, or of brain absorbed, from the physical impossibility of the cranium holding more matter. At the same time, it must be evident that an increased or diminished amount of pressure may be exerted *on* the brain, proportioned to the power of the heart's contraction, the effect of which will be, not to alter the amount of fluids within the cranium, but to cause, using the words of Abercrombie, "a change of circulation" there.

Dr. Kellie performed numerous experiments on cats and dogs, in order to elucidate this subject. Some of these animals were bled to death by opening the carotid or femoral arteries; others by opening the jugular veins. In some the carotids were first tied, to diminish the quantity of blood sent to the brain, and the jugulars were then opened, with the view of emptying the vessels of the brain to the greatest possible extent; while, in others, the jugulars were first secured, to prevent as much as possible the return of the blood from the brain, and one of the carotids was then opened. He inferred, from the whole inquiry, which was conducted with extreme care, "That we cannot, in fact, lessen, to any considerable extent, the quantity of blood within the cranium by arteriotomy or venesection; and that when, by profuse hemorrhages destructive of life, we do succeed in draining the vessels within the cranium of any sensible portion of red blood, there is commonly found an equivalent to this spoliation in the increased circulation or effusion of serum, serving to maintain the plenitude of the cranium."

Dr. Kellie made other experiments upon the effects of position immediately after death from strangulation or hanging. He also removed a portion of the unyielding walls of the cranium in some animals, by means of a trephine, and then bled them to death; and the differences between the appearances of the brain in these cases, and in those where the cranium was entire, were very great. One of the most remarkable of these differences was its shrunken appearance in those animals in which a portion of the skull was removed, and the air allowed to gravitate upon its inner surface. He says: "The brain was sensibly depressed below the cranium, and a space left, which was found capable of containing a teaspoonful of water."

It results, from these inquiries, that there must always be the same amount of fluids within the cranium so long as it is uninjured. In morbid conditions these fluids may be blood, serum, or pus; but in health, as blood is almost the only fluid present (the cerebro-spinal fluid being very trifling), its quantity can undergo only very slight alterations. There are many circumstances, however,

which occasion local congestions in the brain, and consequently unequal pressure on its structure, in which case another portion of its substance must contain less blood, so that the amount of the whole, as to quantity, is always preserved. These circumstances are mental emotions, hemorrhages, effusions of serum, and morbid growths. Some congestions, or local hyperæmias, in themselves constitute morbid conditions; and nature has, to a great extent, provided against their occurrence, under ordinary circumstances, by the tortuosity of the arteries and the cerebro-spinal fluid, described by Magendie.

The views now detailed had been very extensively admitted into pathology, when Dr. Burrows, of St. Bartholomew's Hospital, endeavoured to controvert them, first in the Lumleian Lectures of 1843, and subsequently in a work published in 1846, entitled, "On Disorders of the Cerebral Circulation, and on the Connection between Affections of the Brain and Diseases of the Heart." Dr. Burrows, however, evidently formed the most confused notions of the doctrine we are advocating; for, instead of stating it as propounded by its authors, he *actually misrepresented it*, as Dr. Reid pointed out. Thus, he is always combating the idea that blood-letting, position, strangulation, &c., cannot affect the *blood in the brain;* whereas the real proposition is, that they cannot alter the *fluids within the cranium*. By thus confounding blood with fluid, and brain with cranium, he has only contrived to overthrow a theory of his own creation.

Dr. Burrows has brought forward several observations and experiments, which he considers opposed to the theory now advocated. His facts are perfectly correct. I myself have repeated his experiments on rabbits, and can confirm his descriptions. It is the inferences he draws from them that are erroneous. For the paleness which results from hemorrhage, and the difference observable in the colour of the brain, when animals, immediately after death, are suspended by their ears or by their heels, is explicable by the diminished number of coloured blood particles in the one case, and by their gravitation downwards in the other. That the amount of fluid within the cranium was in no way affected, is proved by the plump appearance of the brains figured by Dr. Burrows, and the total absence of that shrunken appearance so well described by Dr. Kellie.

Neither does our observation of what occurs in asphyxia or apnœa oppose the doctrine in question, as Dr. Burrows imagines, but rather confirms it. On this point the following observations by Dr. John Reid are valuable. He says: "If any circumstance could produce congestion of the vessels within the cranium, it would be that of death by hanging; for then the vessels going to and coming from the brain are, with the exception of the vertebral arteries, compressed and then obstructed. These two arteries, which are protected by the peculiarity of their course through the foramina of the transverse processes of the cervical vertebræ, must continue for a time to force their blood upon the brain, while a comparatively small quantity only can escape by the veins. Indeed, the greater quantity of blood carried to the encephalon by the vertebrals returns by the internal jugulars, and not by the vertebral veins, which are supplied from the occipital veins of the spinal cord; and the anastomoses, between the cranial and vertebral sinuses, could carry off a small quantity of the blood only, transmitted along such large arteries as the vertebrals. And yet it is well known that there is no congestion of the vessels within the cranium after death by hanging, however gorged the external parts of the head may be by blood and serum." This is admitted by Dr. Burrows, although he endeavours to get rid of so troublesome a fact by a gratuitous hypothesis, which will not bear a moment's examination, but for the refutation of which I must refer to the works of Dr. Reid.*

On the whole, whether we adopt the expressions of local congestion, of change of circulation within the cranium (Abercrombie), or of unequal pressure (Burrows), our explanation of the *pathological* phenomena may be made equally correct, because each term implies pretty much the same thing. But if we

* Monthly Journal, August, 1846: Physiological, Anatomical, and Pathological Researches, No. XXV.

imagine that venesection will enable us to diminish the amount of blood in the cerebral vessels, the theory points out that this is impossible, and that the effects of bleeding are explained by the influence produced on the heart, the altered pressure on the brain, exercised by its diminished contractions, and the change of circulation within the cranium thereby occasioned.

I have entered somewhat fully into this theory, because, independent of its vast importance in a practical point of view, it is one which originated in, and has always been maintained by, the Edinburgh School of Medicine. Singular to say, notwithstanding the obvious errors and fallacies in Dr. Burrows' work, no sooner did it appear than the whole medical press of England and Ireland adopted its conclusions, and even Dr. Watson, in the last edition of his excellent work, also abandoned the theory of Monro, Kelly, and Abercrombie. But so far is this theory concerning the circulation within the cranium from being shaken by the attack of Dr. Burrows, that it may be said now to stand on a firmer basis than ever, owing to that attack having drawn forth the convincing reasoning and unanswerable arguments of so sound an anatomist, physiologist, and pathologist as the late Dr. John Reid.

(2.) *All the functions of the nervous system may be increased, perverted, or destroyed, according to the degree of stimulus or disease operating on its various parts.* Thus, as a general rule, it may be said that a slight stimulus produces increased or perverted action; whilst the same stimulus, long continued or much augmented, causes loss of function. All the various stimuli, whether mechanical, chemical, electrical, or psychical, produce the same effects, and in different degrees. Circumstances influencing the heart's action, stimulating drinks or food, act in like manner. Thus, if we take the effects of alcoholic drink, for the purpose of illustration, we observe that, as regards combined movements, a slight amount causes increased vigour and activity in the muscular system. As the stimulus augments in intensity, we see irregular movements occasioned, staggering, and inability of directing the limbs. Lastly, when the stimulus is excessive, there is complete inability to move, and the power of doing so is temporarily annihilated. With regard to sensibility and sensation, we observe cephalalgia, tingling, and heat of skin, tinnitus aurium, confusion of vision, muscæ volitantes, double sight, and lastly, complete insensibility and coma. As regards intelligence, we observe at first rapid flow of ideas, then confusion of mind, delirium, and lastly sopor and perfect unconsciousness. In the same manner pressure, mechanical irritation, and the various organic diseases, produce augmented, perverted, or diminished function, according to the intensity of the stimulus applied, or amount of structure destroyed.

Thus it has been shown, that excess or diminution of stimulus, too much or too little blood, very violent or very weak cardiac contractions, and inflammation or extreme exhaustion, will, so far as the nervous functions are concerned, produce similar alterations of motion, sensation, and intelligence. Excessive hemorrhage causes muscular weakness, convulsions, and loss of motor power, perversions of all the sensations, and lastly, unconsciousness from syncope. Hence the general strength of the frame cannot be judged of by the nervous symptoms, although the treatment of these will be altogether different, according as the individual is robust or weak, has a full or small pulse, &c. These similar effects on the nervous centres from apparently such opposite exciting causes, can, it seems to me, only be explained by the peculiarity of the circulation previously noticed. A change of circulation within the cranium takes place, and whether arterial or venous congestion occurs, pressure on the organ is equally the result. The importance of paying attention to this point in the treatment must be obvious.

(3.) *The seat of the disease in the nervous system influences the nature of the phenomena or symptoms produced.* It is a matter of very great importance to ascertain how far certitude in diagnosis may be arrived at, and the seat of the disease ascertained. On this subject it may be affirmed that, although clinical observation combined with pathology has done much, more requires to be accomplished. As a general rule, it may be stated that disease or injury of one side of the encephalon, above the decussation in the medulla oblongata, es-

pecially influences the opposite side of the body; whilst, if the spinal cord be affected below the decussation, the influence produced is not crossed, but direct. It is said that some very striking exceptions have occurred to this rule, but these at any rate are remarkably rare. Besides, it has always appeared to me probable that, inasmuch as extensive organic disease, if occurring slowly, may exist without producing symptoms, whilst it is certain most important symptoms may be occasioned without organic disease, even these few exceptional cases are really not opposed to the general law. Then, as a general rule, it may be said that diseases of the brain proper are more especially connected with perversion and alteration of the intelligence; whilst disease of the cranial portion of the spinal cord and base of the cranium is more particularly evinced by alterations of sensation and motion. In the vertebral portion of the cord, the intensity of pain and of spasm, or want of conducting power, necessary to sensation and voluntary motion, indicates the amount to which the motor and sensitive columns are affected. Further than this we can scarcely generalize with prudence, although there are some cases, as we shall subsequently see, where careful observation has enabled us to arrive at more positive results.

The fatality of lesions affecting various parts of the nervous centres varies greatly. Thus the hemispheres may be extensively diseased, often without injury to life, or even permanent alteration of function. Convulsions and paralysis are the common results of disease of the ganglia, in the cranial portion of the cord. The same results from lesion of the pons Varolii. But this, if it affect the medulla oblongata, where the eighth pair originates, or injury to this centre itself, is almost always immediately fatal.

(4.) *The rapidity or slowness with which the lesion occurs influences the phenomena or symptoms produced.* It may be said, as a general rule, that a small lesion, for instance a small hemorrhagic extravasation, occurring suddenly, and with force, produces, even in the same situation, more violent effects than a very extensive organic disease which comes on slowly. Here, however, much will depend upon the seat of the lesion. Very extraordinary cases are on record, where large portions of the nervous centres have been much disorganized, without producing anything like such violent symptoms as have been occasioned at other times by a small extravasation in the same place. Here again the nature of the circulation within the cranium offers the only explanation, for the encephalon must undergo a certain amount of pressure, if no time be allowed for it to adapt itself to a foreign body; whereas any lesion coming on slowly enables the amount of blood in the vessels to be diminished according to circumstances, whereby pressure is avoided.

(5.) *The various lesions and injuries of the nervous system produce phenomena similar in kind.* The injuries which may be inflicted on the nervous system, as well as the morbid appearances discovered after death, are various. For instance, there may be an extravasation of blood, exudation of lymph, a softening, a cancerous tumour, or tubercular deposit, and yet they give rise to the same phenomena, and are modified only by the circumstances formerly mentioned, of degree, seat, suddenness, &c. Certain nervous phenomena also are of a paroxysmal character, whilst the lesions supposed to occasion them are stationary or slowly increasing. It follows that the effects cannot be explained by the nature of the lesions, but to something which they all have in common; and this, it appears to me, may consist of—1st, Pressure with or without organic change; 2d, More or less destruction or disorganization of nervous texture. Further, when we consider that the same nervous symptoms arise from irregularities in the circulation from increased as well as diminished action, sometimes when no appreciable change is found, as well as when disorganization has occurred, the theory of local congestions in the nervous centres seems to me the most consistent with known facts. That such local congestions do frequently occur during life, without leaving traces detectible after death, is certain; whilst the occurrence of molecular changes, or other hypothetical conditions which have been supposed to exist, have never yet been shown to take place under any circumstances.—*Monthly Journal of Medical Science*, March, 1851.

T. R. B.

54. *Fatal Effects from Chloroform.*—[At a meeting of the Surgical Society of Ireland (Jan. 25th, 1851), a letter was read from Dr. Geo. Roe, of Cavan, containing the particulars of a case of death from the administration of chloroform; and the writer alludes to two other cases in which death supervened on the operation table, or very soon after removal from it.]

James Jones, twenty-four years of age, who had been a patient in the Cavan Infirmary about two years ago for venereal complaint (for which he had used a very light course of mercury, and of which he was discharged cured), was again admitted on the 26th of February last for a disease of the instep and ankle, supposed to be of a scrofulous nature. He said he had felt a little pain in the foot while in the infirmary for the venereal complaint, but he did not think it of such consequence as to require any attention; latterly, however, the pain and swelling had increased so much, that he was obliged to give over his work, and apply again for admission into the infirmary. It remained for a long time indolent, yet very painful. A great variety of remedies, both local and constitutional, were tried without any advantage. The disease proceeded slowly but steadily on to suppuration, unrestrained by any remedies; afterwards, extensive ulceration, with sloughing of the skin and cellular tissue around the ankle and back part of the leg, as well as of the instep, which gave reason to fear the metatarsal bones and the astragalus were probably the seat of the disease. All this morbid action produced, of course, high degree of hectic fever, with severe diarrhœa, alternating with night sweats, great debility, and emaciation. He had also, for a few weeks, severe bleeding at the nose, with some pulmonary symptoms, as general thoracic pain and shortness and embarrassment in his breathing, but no cough. These hectic symptoms had increased to such a degree in June and July, that his life was despaired of. At this time the stethoscopic signs were very unfavourable. There appeared a general dulness in many parts of the chest, as if the external surface of the lung was congested, or hepatized; but he had *no cough*. By a long course of the usual tonic remedies, bark, wine, chalk, opium, &c., he greatly recovered from all his bad symptoms, having only a most extensive ulceration of the foot and leg, which he saw was quite incurable, and he repeatedly expressed his wish to have the operation of amputation of the leg performed. This Dr. R. consented to, but with some doubt and hesitation, fearing that it would give but a slight chance of life, from the extreme debility of the patient.

Jones was of a very peculiar and very sensitive temperament, yet very patient and uncomplaining, and endeavoured to conceal feelings and expressions which many with less cause of suffering would give way to. For this reason Dr. R. wished by every means to allay and prevent the agitation and excitement inseparable from the operation.

Jones was cheerful, and appeared to be firm and courageous, but when placed on the table the heart's action was very *quick and weak*, but he did not appear faintish, or more pale than usual. Dr. R. *then saw* Mr. Nalty, the apothecary, *measure one drachm* of the chloroform, in the small minim glass measure, and pour it upon a little folded lint, which was placed in an oval hollowed sponge, held in the hand with a small towel. Recollecting this chloroform had been used in another case, and finding some little delay in producing the anæsthetic effects, and supposing the strength of the chloroform might be a little weakened, as the bottle had not been kept very closely stopped, Dr. R. directed Mr. Nalty to add *thirty* drops more to that already on the lint.

Dr. R. then applied the sponge, &c., to the patient's nose, directing him to keep his mouth shut. Mr. Brice had scarcely screwed up the tourniquet, which had been placed previously on the thigh, and while Dr. R. was examining the state of the circulation in the tibial arteries, to prevent the least unnecessary loss of blood, and which could not have occupied one minute—certainly he could not have made or taken *fifteen* inspirations—when Dr. Halpin said the anæsthetic effects were produced. This struck Dr. R. as being unusually quick and sudden, and on removing the towel from the face there was a slight convulsive action of the left eyelids, and the lids partially open, and a small quantity of saliva (froth) at the mouth. Dr. R. felt rather uneasy; and on a more minute and instant examination of the heart, the eyes, muscles of the limbs, &c., found the patient *dead*. Every means within reach were resorted to, to try

and restore animation. The strongest ammonia and hartshorn were applied to the nostrils, the fauces, and palate; cold air, cold water, to the surface; and afterwards scalding water was applied over the region of the heart; inflation of the lungs; general friction of the body; change of posture, were all, in turn and rapid succession, tried, but without the least effect. Dr. R. had no means of making or procuring oxygen gas, and unfortunately his portable galvanic apparatus was not then in order or ready for use; so that he had the sad and painful spectacle of his patient *killed*, as if by a stroke of lightning, in less than *one* minute, before his eyes.

Dr. R. asks, what, in connection with the chloroform, was the cause of this catastrophe? The patient's bowels had been fully and freely opened the day before the intended operation, and also on the morning of that day. He had taken only a small quantity of bread with his tea, at nine o'clock, three hours before.

He was placed in the recumbent posture, his head being very little raised by a pillow, and he appeared as well on that morning, if not better, than he had been for some time; but he was very weak, and hectic symptoms were very evident, and his former diarrhœa had greatly reduced him; yet he was not more exhausted or weak than others on whom Dr. R. had operated, and successfully, without the use of chloroform. The chloroform was taken out of the same bottle which he had used a few weeks previously for an operation on a delicate woman with strangulated hernia, and with whom he used the same quantity (℥iss) on the lint. In this case it was four or five minutes before the anæsthetic effect was produced, and she recovered from the effect of it before she was taken off the table.

"I must say," observes Dr. R., "that I have the impression that the success of my capital operations, and particularly those attended with loss of blood, has not been so satisfactory to me as it was previous to the introduction of anæsthetics. But I have, in reflecting on this, attributed it to other causes, partly moral, and partly physical, believing that the change of food, and of outward circumstances of various kinds, has made a very considerable change in the subjects and constitutions of the class of people with whom I have an intercourse and communion.

"But to return, I would wish to know what way I have erred, and what was the cause of my misfortune in the death of my patient? It may be said the case was not a subject fit for chloroform, on account of his weak and hectic state. Now, this appears to me to be a question requiring all the experience, and all the observation and judgment, which can be brought to bear upon it. If we are not to use such an agent in the *weak*, the timid, and highly sensitive patient, for what class of patients do we require anæsthetics? I have had several protracted and painful operations before and since the great discovery of anæsthetics, of ether and chloroform, and without the use of these my patients have borne their sufferings without a stir or a groan, and I have often observed to my assistants that no anæsthetic could have produced greater quiet or composure."

"When we hear the very indiscriminate, and I would almost say the unjustifiable use made of chloroform by every description of practitioner, it is scarcely a matter of surprise that much more mischief is not done; yet the medical records and other public journals furnish proofs enough of its great and fatal danger, sufficient to warn the young and inexperienced from using, without due care and knowledge, such a remedy, and one possessing such awful power over human life. I wish I could say that all the medical records of its use and advantages had been given with that fidelity, truth, and honesty, which such a subject requires. It is not by the relation of a number of successful cases, however great, that the laws and rules which should regulate its exhibition, can be laid down or ascertained. We ought to have a faithful account and record of the unsuccessful, dangerous, and fatal cases in which it has been employed; and I fear many who have extolled its use and benefits have most unjustly and unworthily suppressed its dangers, bad effects, and even its fatality in their own hands. I have never used it in midwifery practice, but, from my knowledge of it, I should say that some of our brethren in the north have used it in that branch of the profession to an extent that neither experience, prudence, nor common honesty would warrant."—*Dublin Medical Press*, March 26, 1851.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Wills' Hospital—Service of Dr. Isaac Parrish—*Cases discharged from Jan. 1st,* 1851, *to April 1st,* 1851.

	Cured.	Relieved.	Incurable.
Granular ophthalmia,	4	2	0
Catarrhal "	1	0	0
Scrofulous "	8	0	0
Purulent "	3	0	0
Ophthalmia tarsi,	4	0	0
Chronic conjunctivitis,	1	1	0
Acute "	1	0	0
Ulcer of the cornea,	4	0	0
Corneitis,	4	0	0
Amaurosis,	0	1	1
Cataract with amaurosis,	0	1	1
Staphyloma,	1	0	0
Syphilitic iritis,	2	0	0
Wound of the eye,	2	0	0
Inflammation of the knee,	1	0	0
Ulcer of the leg,	1	0	0
	37	5	2

Wills' Hospital Dispensary—cases treated:—

Acute conjunctivitis,	5	Scrofulous ophthalmia,	20
Chronic "	9	Phlyctenular "	8
Granular "	4	Pustular "	3
Catarrhal "	12	Tarsal "	16
Rheumatic "	3	Corneitis,	3
Iritis,	1	Opacity of the cornea,	3
Injury of the eye,	2	Partial amaurosis,	10
Specks of iron on the cornea,	5	Pterygium,	2
Photophobia,	2	Ulcer of the cornea,	2
Albugo,	1	Entropion,	8
Total,			120

Corneitis.—Peter Broadrick, æt. nineteen, weaver, native of Ireland, of scrofulous diathesis, was admitted to the hospital, Nov. 30th, 1850. For three weeks previous, he had suffered with acute disease of the eye, which had come on spontaneously and gradually. He had been treated in several places before he applied here, receiving no benefit, and becoming slowly worse. At the time of his admission the vision of the diseased eye was entirely gone—the cornea was clouded with lymph, and so completely opaque as to hide the pupil. He had intolerance of light, profuse lachrymation, and slight pain, with increased vascularity of the conjunctiva. Immediately after his admis-

sion he was put upon the use of mercury in small doses with quinine. (Hyd. proto-iod. gr. j; Quin. sul. grs. ij. ter in die.) He continued the use of the mercurial with the quinine, with occasional interruptions of the mercurial, as symptoms of salivation appeared, for two months. He had at the same time a nutritious diet, with exercise in the open air when the state of the weather would permit. The results of this combined mercurial and tonic plan of treatment were most satisfactory. In ten days, the active inflammatory symptoms had disappeared, and from that time the effused lymph was gradually removed from the cornea. At the end of four weeks the pupil was visible through the margin of the cornea, and when discharged, Feb. 12th, the vision was nearly as good as in the unaffected eye. The vin. opii was occasionally used in the latter stages of the treatment as a local application. Dr. Parrish teaches, that nearly all cases of corneitis occur in scrofulous subjects; and to enable such subjects to bear mercurials, which are essential to the resolution of the inflammation, he gives quinine at the same time that the mercurial is given—from three to six grains of quinine daily, and he continues this combined use of the medicines named until the inflammation and its results are removed. His usual plan is to give minute doses of the mild chloride of mercury, frequently repeated through the day, on alternate days, and quinine on the intermediate days. In this way calomel may be given for a long time without danger of ptyalism. The occurrence of ptyalism he considers an unfortunate accident. There is now a little girl in the hospital on this plan of treatment, who was admitted on the 15th of January. She had been treated outside until the active inflammatory symptoms had subsided, but in both eyes the cornea was so obscured as to hide the pupil, and almost completely to destroy vision. The cornea of the left eye is now entirely clear, except a small portion in the centre; and the cornea of the right eye has become so far transparent as to enable an observer to see the pupil through its margin. Dr. P. anticipates an entire restoration of vision for her.

Ungt. Picis.—The tar ointment was first used by Dr. Parrish during his service at this Hospital in the year 1850, in ophthalmia tarsi. Since then he has used it in nearly all the cases of this form of ophthalmic disease found in the hospital wards, and in the hospital dispensary. He has found it far more efficient in eradicating this obstinate affection than any of the agents usually employed. He directs it to be carefully rubbed in at the roots of the cilia at bedtime, and to be washed away with Castile soap and tepid water on the following morning. He was led to employ it in these cases from regarding the eruption on the margin of the lids analogous to tinea capitis, over which the tar ointment is known to have such an efficient curative influence. So far as he has used this agent under my observation, every case has been cured where the remedy has been persevered in. About twenty-five cases have come under my notice during eight months of Dr. Parrish's service at the Hospital.

A. F. MACINTYRE, M. D., *Resident Physician.*

Wills' Hospital, *April* 1851.

DOMESTIC SUMMARY.

Connection of Amaurosis with Granular Degeneration of the Kidneys and Protrusion of the Eyeball.—Dr. Hays called the attention of the Philadelphia College of Physicians (Jan. 6th, 1851) to the connection which existed between amaurosis and granular disease of the kidneys, and likewise with protrusion of the

eyeball. He had seen several cases of amaurosis with striking protrusion of the eyeball, all accompanied during the life of the patients with albuminous urine, and after death presenting granular disease of the kidneys. These cases had convinced him that amaurosis was very frequently a consequence of this peculiar renal disease. In all these cases there was also a peculiar brownish-yellow tint of the skin, particularly that of the face, which Dr. H. was inclined to consider as characteristic of Bright's disease of the kidney.

The first case to which he called attention was one already reported to the College. The preparation of the kidney, exhibiting its diseased condition, is now in the pathological cabinet of the College. The gentleman who was the subject of this case had been under the care of a homœopathist previously to being seen by Dr. H. There was decided prominence of the eyeball, and the peculiar complexion alluded to, and, as the preparation will show, the kidneys were the seat of granular disease. The patient died in a day or two after he was seen by Dr. H.

The second case occurred in the wife of a physician. She was a healthy young woman at the period of her marriage. About fourteen months afterwards, she was threatened with abortion, at which period she was largely bled, and in a short time subsequently was seized with convulsions, and aborted at the fifth month of pregnancy. Soon after she became amaurotic, and Dr. H. was requested to see her. She was then anæmic—as was supposed in consequence of the loss of blood she had sustained—and there was a very marked prominence of her eyeballs. An aneurismal tumour existed at the bend of the arm, from a wound of the artery made when she had been bled, and considerable dropsical effusion into the cellular tissue of the face and limbs. The husband was not aware that her urine presented any abnormal condition; on examination, however, it was found to be highly albuminous. The patient went on from bad to worse, and ultimately, after several convulsive paroxysms, died. There was no doubt in this case of the existence of granular degeneration of the kidneys. Although no *post-mortem* examination was made, still the condition of the urine plainly pointed out this condition of the renal organs.

The third case had, previously to coming under the care of Dr. Hays, been treated homœopathically. The patient, an athletic farmer, in the meridian of life, had gradually become amaurotic—he was apathetic, taciturn, and inclined to sopor. Complexion brownish-yellow. His limbs and countenance slightly œdematous. Bowels regular, eyes slightly but very perceptibly protruded. Urine spare in quantity and highly albuminous. The patient became more and more amaurotic, and torpid. The dropsical effusion increased in extent. He experienced one or two attacks of convulsions. Complained in the last week of the existence of acute pain in his left side. A variety of treatment was tried with little or no effect. He finally died, and upon examination, the kidneys were found to be granular, and the liver affected with cirrhosis. The left pleura presented indications of recent inflammation.

The fourth case was that of a married lady whom Dr. H. was then attending. When pregnant with her first and only child, she had become dropsical; her sight had gradually become impaired. When seen by Dr. H. the balls of her eyes were exceedingly prominent, so much so as to make her ashamed to be seen abroad. She was excessively debilitated, very anæmic, and her complexion was of a brownish-yellow tint. There was a swollen and puffy condition of the face, and some degree of apathy. She was placed upon a good diet and a tonic course of treatment. Under this the eyeballs became less prominent, and puffiness of the face diminished, the albuminous condition of the urine decreased, her strength and mental activity increased, and her power of vision was improving, when, contrary to Dr. H.'s express advice, she greatly fatigued herself by walking too far. Excessive prostration followed; but by perseverance in an invigorating course of treatment she is again mending, and Dr. H. entertained some hopes of her final recovery.

Dr. Hays had brought forward these cases to direct attention to the fact of the frequent dependence of amaurosis upon granular disease of the kidneys, and to the importance of an early diagnosis of these cases, it being in their early stage alone that we can hope, by an appropriate treatment, to effect their cure.

In every case of amaurosis attention should be paid to the state of the kidneys and the condition of the urinary discharge.

Dr. Pepper has observed an amaurotic condition of the eyes in connection with granular disease of the kidneys. A morbid prominence of the eyeballs has not, however, been noticed by him in such cases. Dr. P. saw in the Pennsylvania Hospital a case of amaurosis in a female labouring under granular disease of the kidneys. The patient was discharged much improved, but subsequently died of convulsions.—*Quarterly Summary of the Tran. of the Philad. College of Phys.* vol. i. No. 2, N. S.

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Cod-liver Oil in Scrofulous Affections and in Consumption.—Dr. Hays stated to the Philadelphia College of Physicians (Feb. 6, 1851) that he had employed the cod-liver oil extensively, in the Wills' Hospital and in private practice, during the last three years, in scrofulous ophthalmia, in cases of granular lids, in scrofulous enlargement of the external glands, in cases of hip disease, and in the various forms of external scrofula, with the best effects. In scrofulous ophthalmia he had found it of all remedies the most efficacious. Under its use the constitution becomes invigorated; the glandular swellings are dissipated; and the cutaneous affection so commonly met with about the face and ears disappears. He has, also, employed it in several cases of granular lids with the most favourable results. In this affection, patients are very liable to relapse, from slight causes; this tendency he has found to be removed by the use of the cod-liver oil, alone, or in conjunction with the syrup of the proto-iodide of iron. In the case of a lad now under treatment affected with scrofulous enlargement of the cervical glands, chronic conjunctivitis, and granular lids, with deposit of lymph in the cornea, and intense photophobia, by the use of the cod-liver oil and proto-iodide of iron, with the occasional application to the eye of the liquor plumbi, all the symptoms of disease are rapidly disappearing. The patient can bear the light without inconvenience, can read small print, and has all the general appearance of restored health. He has escaped a relapse now for four months. The photophobia has disappeared entirely. In another case of excessive photophobia, with granular lids and penetrating ulcer of the cornea, the cod-liver oil has been used (at the suggestion of the *interne* of the Wills' Hospital, Dr. Macintyre) with the most decided advantage.

Dr. H. has now employed the cod-liver oil in from two hundred to two hundred and fifty cases of scrofulous ophthalmia and granular lids, and in most of these cases the benefit resulting from its use has been very striking.

Dr. Condie remarked that he had employed the cod-liver oil pretty extensively. In all the forms of external scrofula, including scrofulous ophthalmia, he had certainly seen much good result from its use; the indications of strumous disease have very generally ultimately disappeared under its use, while the appetite of the patients has improved, and they have speedily exhibited an increase of strength and bulk. It is especially in the scrofulous affections of young subjects that the cod-liver oil had appeared to him to produce the greatest amount of benefit. He had not, however, seen any very striking amount of good result from its administration in cases in which tuberculous deposits had actually taken place in any of the tissues. In tubercular phthisis especially he had rarely, if ever, observed any positive benefit from its use. He had given it in many cases, and in large quantities, and though it had been taken perseveringly by the patients for a long period of time, he could not say that in a single instance the disease of the lungs had been arrested by it. The onward march of these cases towards a fatal termination appeared to him to be as rapid as those in which the oil had not been given. The wife of a gentleman connected with the public press, now under the care of Dr. C., had used it daily for the last three years, and she believes with very decided advantage. But though in her case the affection in the lungs is of a very chronic character, still the frequent attacks of hæmoptysis to which she is subject, and the physical signs revealed by auscultation, indicate, but too clearly, that her disease is making a slow but constant progress.

Dr. Wood said that he should not be doing justice to his own feelings were he not to seize this opportunity of communicating to the College the informa-

tion on the subject under discussion he had derived from his recent experience. He felt himself the more strongly urged to make this communication from the fact that, in the last edition of his work on the Practice of Medicine, he had stated that the only effect he had observed from the use of cod-liver oil was the production of nausea. Now the reason of this he had ascertained was that he had not persevered sufficiently long with the use of the remedy. Subsequently he had employed it largely and perseveringly, in hospital as well as in private practice, and most assuredly he had never met with any one remedy or combination of remedies which had proved so efficacious as this in pulmonary phthisis. It is too soon, however, to say that in any case it will permanently cure the disease. He has certainly seen cases presenting, apparently, all the phenomena—the general symptoms as well as the physical signs—characteristic of phthisis, get well under its use. The patients have, at least, lost their cough and fever, their respiration has become natural, and they have acquired strength and flesh. In one case which occurred in the hospital, auscultation indicated the existence of a cavity at the summit of one lung, and deficient respiratory murmur in the other. The patient was pale, extremely feeble and emaciated, with hurried respiration, cough, and copious expectoration, hectic fever and night sweats. Although in this case Dr. W. expected little, even temporary, benefit to result from any plan of treatment, still he thought it his duty to place him under the use of the cod-liver oil. At the end of six or eight weeks, he was surprised to see the patient able to sit up, and considerably improved in all respects. From that time the unfavourable symptoms gradually lessened, the cough and expectoration abated, the respiration became more free and easy, the hectic fever and night sweats disappeared, the pulse increased in strength and diminished in frequency; and, at the termination of four months from the commencement of treatment, the patient had become fat, ruddy, strong, and, to all appearance, entirely well. Upon an examination of the chest, a deficiency of respiration was detected in the vicinity of that portion of the lung in which a cavity had existed—which is precisely what we should have anticipated. This is the most striking case which he has met with of the cure of pulmonary disease under the use of cod-liver oil.

The natural cure of tubercle is by the tuberculous matter becoming softened, and then discharged by expectoration. Now, if by any means we can so far modify the nutritive process as to prevent a further deposition of tuberculous matter, we may have a reasonable hope of a cure taking place in many cases of tubercular phthisis. We have the record of instances where this has actually taken place; the cicatrices of the discharged vomicæ being apparent, after death from other causes, many years subsequent to the disappearance of the symptoms indicative of phthisis.

In what had appeared to be the incipient stage of consumption, Dr. Wood had seen several very striking instances of the efficacy of cod-liver oil. In one case, that occurred in a child, he was convinced that there existed a cavity in one of the lungs. So far as the physical signs derived from auscultation were to be depended on, its presence appeared to be established. The patient was emaciated, had cough, impeded respiration, and hectic fever. Dr. Wood had some apprehension that it was a case of pulmonary tuberculosis. The child was put upon the use of cod-liver oil, with a proper diet and regimen, and at the end of six weeks the symptoms of disease had so far disappeared that the patient was considered convalescent. He ultimately recovered.

A middle-aged gentleman, who had suffered from repeated but slight attacks of hemorrhage from the lungs, became, subsequent to one of these attacks, emaciated and enfeebled in strength, with a frequent pulse and obstinate cough. Auscultation revealed no positive indications of pulmonary disease; but the general symptoms were such as to occasion much solicitude. Under the use of cod-liver oil, and at the termination of six weeks, he began to improve, and finally recovered.

In another case, that of a young man about twenty years old, the patient, who was convalescent from an attack of typhoid fever, became affected with cough, very frequent pulse, expectoration, fever, night sweats, and emaciation. Auscultation of the lungs evinced the probable existence of tuberculous deposition

at the summit. Dr. W. considered this patient in imminent danger, unless he should be able to bring to bear upon his case influences more beneficial than those he had formerly had at his disposal. The patient was placed upon the use of cod-liver oil, with an appropriate diet and regimen; and was sent on a voyage to Europe. At the end of about six weeks he began to improve; and, on his return, at the end of three or four months, had lost all the symptoms of the disease, except frequent pulse, which gradually diminished under the continued use of the oil; and when Dr. Wood last saw him he was apparently in perfect health.

Here are three cases, in all of which he considered the symptoms under which the patients laboured to indicate disease of the lungs, of a very critical, and in one, almost hopeless, character. Under the use of cod-liver oil they all entirely recovered—so far at least as a disappearance of the morbid symptoms and a return of strength and vigour can indicate an entire recovery. He was not prepared to say that they were all instances of pulmonary tuberculosis—though there were strong reasons for believing that in most of them such was the case. They indicate, however, the very excellent effects to be derived from the oil in cases of a very troublesome and threatening character. It is important that the use of the remedy should be persevered in for a length of time. There is much, too, sold for cod-liver oil which contains little or none of the genuine article. If it has a strong taste and smell of boot-leather, it may be considered genuine.

Dr. Hays remarked that the communication just made by Dr. Wood was particularly valuable, and furnishes strong testimony in favour of cod-liver oil as a remedy in phthisis. His own experience of the effects of the article in that disease was but slight and by no means so favourable as that of Dr. W. In one case, however, the oil appeared to him to prove decidedly beneficial. It was that of a boy five years old, labouring under a violent cough, which resisted all the usual remedies. During a paroxysm of crying the patient was attacked with hemorrhage from the lungs, which recurred six times within ten days. In one of these attacks Dr. H. was assured that the child had discharged half a pint of blood.

The cough now became more constant and troublesome; the pulse rapid and feeble; there was expectoration of purulent matter, great restlessness, hectic fever, and excessive prostration. The child was put on the use of cod-liver oil, with a pectoral mixture to relieve the cough. The patient gradually acquired strength—the cough and expectoration diminished—the appetite returned, and health was finally restored. Since his recovery he has gone through an attack of pertussis without a recurrence of his pulmonary disease, and he now appears to be perfectly well.

Dr. H. has administered the cod-liver oil in cases of phthisis occurring in adults without any benefit—so far as the arrest of the disease was concerned—though he had no doubt the remedy even in these cases was often productive of good by its influence in improving nutrition.—*Ibid.*

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Temporal Ridges of the African Cranium.—Dr. Neill exhibited to the College several skulls of different races, for the purpose of illustrating a point hitherto not observed by anatomical or ethnological writers.

In viewing the superior surface or norma verticalis of the African cranium, it will be found that the distance between the temporal ridges is so small, in comparison with that of other races, that it may be considered as a characteristic peculiarity.

By measurement, in thirty-three African heads, the smallest distance between the ridges averaged $4\frac{1}{4}$ inches; in twenty-nine Caucasian the same distance averaged $5\frac{2}{3}$ inches.

The temporal fossa is larger in every respect in the African head.—*Ibid.*

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Two Cases of Popliteal Aneurism successfully treated by Compression.—Dr. Jas. R. Wood, one of the surgeons to Bellevue Hospital, has recorded in the *New York Journal of Medicine* (May 1851) the two following cases of popliteal aneurism successfully treated by compression:—

Case 1.—John Morgan, aged thirty, born in Ireland, carpenter, admitted into Bellevue Hospital December 29th, 1849. He is temperate in his habits, and has enjoyed good health. While at work, twelve months ago, the scaffolding on which he was standing gave way, and fell to the ground, striking his left leg over the popliteal space on an upright piece of timber. Inflammation and swelling followed, and the part was very painful; under proper treatment these symptoms disappeared in eight or ten days, leaving a small hard tumour, which has since remained, slowly increasing in size. This tumour is the size of a small orange, is nearly globular in shape, and has a very firm feel. Strong pulsations can be felt when the fingers are placed over it; these pulsations are synchronous with those of the heart, and cease when compression is made on the femoral artery above it; at the same time the tumour diminishes somewhat in size. A faint aneurismal thrill can be heard at times by applying the ear to the part; this ceases with the pulsations. Pulsation and the thrill return, and the tumour regains its size as soon as pressure is removed. Slight pain is sometimes felt in the affected part.

Commenced treatment January 23, 1850, by compression, using alternately Dupuytren's instrument and the thumb. Patient was able to bear the compression twenty-five minutes the first application; second, thirty; third, thirty-five; the thumb being used in the intervals, which varied from ten minutes to half an hour. Very soon after the instrument was applied, the temperature of the limb fell two or three degrees, but in the course of three hours the natural heat was restored.

24*th*.—Compression has been constantly kept up since yesterday; patient is able to bear the instrument thirty minutes this morning without much pain; no pulsation felt in the tumour since half past 3 o'clock this morning; treatment is borne well; no outward symptom; pressure slightly moderated.

25*th*.—Treatment continued. Last night, at half past 11 o'clock, patient complained of pain in his back, and was very restless; pulse sixty-three per minute, and moderately full; tongue clean; functions regularly performed. Ordered sulph. morph. one-sixth of a grain, after which he was in a great measure relieved, and slept three hours; bears treatment much better than yesterday; instrument borne an hour without pain; no pulsation.

26*th*.—Treatment still continued; pressure moderated so as to be borne three hours without inconvenience; leg slightly swollen; still of natural temperature; a branch of one of the internal articular arteries can be felt pulsating on the inner side of the knee. This branch is enlarged, and is the size of or larger than the radial artery. No pulsation has been felt in the anterior or posterior tibial arteries since treatment was commenced.

27*th*.—No change of consequence since yesterday; slight compression borne six hours without pain. Leg not so much swollen as yesterday; small arterial branches can be felt pulsating on both sides of the tumour.

31*st*.—No change since last date of consequence; the tumour has sensibly diminished in size; collateral circulation appears to be growing stronger. The arterial branch inside the knee has increased in size somewhat; the instrument is still kept on to make slight compression.

Feb. 1*st*.—A graduated compress and roller bandage applied instead of the instrument. The roller was carried from the toes to the thigh. Patient allowed to walk a little.—10*th*. Compress and roller still kept on; tumour very much diminished in size. The veins of the affected leg are larger than those of the other side. There seems to be some obstruction to the return of blood above the knee. Patient allowed to walk around the ward, and back and forward in the hall adjoining. He has no pain, but says the knee-joint feels a little stiff, and that the foot feels numb sometimes. There is no pulsation yet felt in either of the tibial arteries.

20*th*.—All treatment discontinued except restriction in exercise; tumour nearly absorbed; a vestige merely remaining; veins still continue enlarged, but are not so much so as at last date. The sensation of numbness has almost entirely disappeared.

During the whole treatment the ordinary hospital diet has been allowed in

moderate quantities. The appetite has been good; digestion and the other functions have been performed with perfect regularity.

I am indebted to my house-surgeon, Dr. Loving, and Dr. Loines, house-surgeon of the second surgical department, for their assistance in the treatment of this case.

Case II.—A—— B——, aged 33, N. Y., carman, intemperate, has had syphilis, for which he was treated with mercurials. He first noticed a small tumour behind the left knee, one month since, accompanied with slight pain, which he attributed to a violent jump. This did not trouble him much, and was almost forgotten, until at the end of the week, when another leap, and a slip upon a round stone, were followed by great pain, and steady increase of the swelling, which compelled him to apply for medical relief; the case was readily recognized by his physician, Dr. Leveridge, but on account of the influence of his previous habits upon the nervous system, when he became confined to the house, treatment for the cure of the aneurism was delayed until this day, June 28th, 1850. The tumour is at present larger than a goose-egg, the pain is great, shooting down the leg at each pulsation, and constantly enhanced by the excessive œdema of the limb below the knee. General health, average; pulse, eighty-eight; respiration, twenty-four.

The plan of cure is, as in the case of Morgan, to interrupt entirely and constantly the primary current of blood to the aneurism, by the use of Dupuytren's compressor to the middle of thigh, alternating with pressure by the thumb to the artery, at the rami pubis. With this view, pressure by the instrument was first applied at 9 o'clock forty minutes, A. M., and continued thirty minutes, when, on account of the pain caused by it, the circulation was confined by the thumb at the rami pubis, and the pressure by the instrument taken off twenty minutes, after which it was reapplied, and the assistants so directed to make the alternation for the day; also, to aid the return of blood by friction with the hand, when pressure by the instrument should be taken off, and the patient rendered more comfortable by keeping the leg flexed.

In a few minutes after the circulation was thus cut off, the leg and foot became cold, but the heat soon returned to the upper part of the leg, and the superficial veins soon became enlarged, but gradually diminished in size. 9 P. M., same day. Pressure has been steadily kept up as directed, more than eleven hours, at about the same alternations; about five hours since, the patient suddenly complained of excruciating pain in the knee and leg for a few minutes; and in the course of an hour from that time, pulsation could be felt in one of the internal articular arteries. The tumour is now hard and incompressible, and, upon removing all pressure from the femoral artery, no pulsation can be perceived in it; notwithstanding this, pressure directed to be continued, with somewhat less severity, in the same manner during the night, the leg to be enveloped in cotton, and an anodyne administered.

June 29th.—10 A. M. Pressure has been steadily continued; patient showed some symptoms of mania à potu. There is no pulsation in the tumour, although it can be felt in the artery to within an inch of the aneurism; the leg is still cold; pressure continued.—*30th*, 9 A. M. Lighter pressure has been continued in the same way, and the patient now bears the instrument two hours at a time; the natural warmth has returned to the whole limb; anodynes are still administered at night; pressure to be continued.—*July 1st.* All going on well; œdema of the limb is subsiding, making the tumour more definable.—*2d.* Same note as yesterday; pressure is needed to be maintained so lightly, that the instrument is continued three or four hours in one place, and then a little up or down the thigh; the application of the thumb has not been needed since last night. —*4th.* All going on well; up to this time an assistant has remained constantly with the patient; but now it is considered unnecessary for the attendance of an assistant; no pulsation can be felt in the femoral artery below the tendinous arcade of the triceps.—*6th.* All going on well; the instrument is still kept on to confine the patient to the bed.

20th.—Absorption is going on in the tumour; the œdema is subsiding; patient is recovering the use of the limb, and he is allowed to sit up and move about on crutches. The whole limb is bandaged, and graduated compresses

are applied along the course of the femoral artery. Pulsation can be felt in numerous small vessels around the knee; but it may be worthy of noting here that at no time since the patient has been under treatment could pulsation be detected in either of the tibial arteries.

Case of Amnesia.—Dr. Thomas Hun, of Albany, records (*American Journal of Insanity*, April, 1851) the following interesting case of amnesia: "M'Nelly, a blacksmith, aged about thirty-five years, is a man of temperate habits, and of fair degree of intelligence. Before the present attack, he could read and write with facility. During the last eight years or longer, he has been labouring under a disease of the heart, which has caused repeated attacks of profuse hæmoptysis. At intervals he has been able to work at his trade.

"On the fourth of July last, he walked a great deal in the sun, and in the evening had symptoms of cerebral congestion. For several days, he remained in a state of stupor, from which he could be roused to take his drinks and medicines, but, when left to himself, relapsed into a state of unconsciousness. After a few days, he began to recover from this condition, and to understand what was said to him; but it was observed that he had great difficulty in expressing himself in words, and, for the most part, could make his wants known only by signs. There was no paralysis of the tongue; he moved it in all directions, and could utter a few words with distinctness. He knew the meaning of words spoken before him, but could not recall the words he needed to express himself, nor could he repeat the words when he heard them pronounced.

"He had the command over a few words, which he could recall and pronounce, and by means of which, together with signs, he endeavoured to make himself understood. He was conscious of the difficulty under which he was labouring, and seemed surprised and distressed by it. When he was endeavouring to express himself, if I pronounced the words he needed, he seemed pleased, and would say, 'Yes, that is it;' but was unable to repeat the word after me. If I pronounced it several times, he was still unable to repeat it, though he made great efforts to do so. He generally uttered words somewhat resembling those he was trying to pronounce. Thus far, his case resembled those mentioned by writers on the subject, but there was this peculiarity. After he had made fruitless efforts to repeat a word after me, I wrote it for him, and then he would begin to spell it letter by letter, and after a few trials was able to pronounce it. If the writing was now taken away from him, he could no longer pronounce the word, but, after long study of the written word, and frequent repetition, he could learn it so as to retain it, and afterwards use it. He kept a slate, on which the words he required most were written, and to this he referred when he wished to express himself. He gradually learned these words, and extended his vocabulary so that, after a time, he was able to dispense with his slate. He could read tolerably well from a printed book, but hesitated about some words.

"When he was unable to pronounce a word, he was also unable to write it, until he had seen it written, and then he could learn to write as he learned to pronounce, by repeated trials.

"It is now more than six months that he has been in this condition. His health is tolerable, with the exception of slight dyspnœa, and some œdema of the legs, depending on the disease of the heart. He is continually learning new words, and can now make himself understood pretty well, though he often hesitates for a word, and employs circumlocution when he cannot recall the proper word, somewhat as if he were speaking a foreign language, imperfectly learned. He can now readily repeat any word spoken before him, without seeing it written. His mind seems somewhat impaired, as we often see it in persons who have had an attack of apoplexy.

"I should have mentioned that he has not complained of pain in the head during his disease. I have repeatedly questioned him about pain in the frontal region, but his answers have always been in the negative."

American Medical Association.—The fourth annual meeting of this Association was held in Charleston, S. C., on the 6th, 7th, 8th, and 9th of May. About two hundred delegates were present, and the proceedings were as usual characterized by great cordiality and unanimity of sentiment. Every courtesy which the most elegant and liberal hospitality could devise was lavished upon the members of the Association by their brethren of the Palmetto State; and many warm friendships were formed, calculated to bind still closer in one brotherhood those who cultivate our science, and add to the power and influence of the Association.

Among the most important acts of the session was the abolition of the Standing Committees on "Medical Sciences," on "Practical Medicine," on "Surgery," on "Obstetrics," on "Medical Education," and on "Medical Literature," and the substitution for them of special committees to investigate and report on subjects of interest, and inviting voluntary communications by the offer of a prize of fifty dollars for any number of them not exceeding five, which shall be deemed worthy by a committee appointed for the purpose. This change in the organization of the Association is a most important one, and we think it is calculated to give a better direction, and to open a much wider field for the labours of the Association, and to greatly extend its usefulness. Such seemed also to be the sentiments of those who were present at the meeting, as it was advocated by every one who spoke on the occasion, and the resolutions were adopted, we believe, unanimously.

We fear, however, that the number of the special committees appointed (twenty-seven) was too large.

The reading of so many reports will extend the session for a longer period than the members will find it convenient to remain from home, and their publication involve an expenditure beyond the resources of the Association.

The following is a list of the chairmen of the special committees:—

1. Dr. D. F. Condie, of Philadelphia, Chairman to the Committee on the Causes of the Tubercular Diathesis.
2. Dr. S. H. Dickson, of Charleston, S. C., on the Blending and Conversion of the Types of Fever.
3. Dr. James Jones, of New Orleans, on the Mutual Relations of Yellow and Bilious Remittent Fever.
4. Dr. John B. Johnson, of St. Louis, Mo., on Epidemic Erysipelas.
5. Dr. Charles D. Meigs, of Philadelphia, Acute and Chronic Diseases of the Neck of the Uterus.
6. Dr. J. P. Jervey, of Charleston, S. C., on Dengue.
7. Dr. Daniel Drake, of Cincinnati, Milk Sickness, so called.
8. Dr. Lopez, Mobile, Ala., Endemic Prevalence of Tetanus.
9. Dr. George B. Wood, of Philadelphia, on Diseases of Parasitic Origin.
10. Dr. R. D. Arnold, Savannah, Ga., on the Physiological Peculiarities and Diseases of Negroes.
11. Dr. Horatio Adams, of Waltham, Mass., on the Action of Water on Lead Pipes, and the Diseases which proceed from it.
12. Dr. Joseph Carson, Philadelphia, on the Alkaloids which may be substituted for Quinia.
13. Dr. George Hayward, Boston, Mass., on the Permanent Cure of Reducible Hernia.
14. Dr. S. D. Gross, Louisville, Ky., on Results of Surgical Operations for the Relief of Malignant Diseases.
15. Dr. James R. Wood, New York, Statistics of the Operation for the Removal of Stone in the Bladder.
16. Dr. Charles A. Pope, St. Louis, Mo., Water, its Topical Uses in Surgery.
17. Dr. Alexander H. Stevens, New York, Sanitary Principles applicable to the Construction of Dwellings.
18. Dr. Porcher, Charleston, S. C., Toxicological and Medicinal Properties of our Cryptogamic Plants.
19. Dr. G. Emerson, Philadelphia, Agency of the Refrigeration produced through Upward Radiation of Heat as an Exciting Cause of Disease.
20. Dr. Worthington Hooker, Conn., on the Epidemics of New England and New York.

21. Dr. John L. Atlee, of Lancaster, Pa., on the Epidemics of New Jersey, Pennsylvania, Delaware, and Maryland.

22. Dr. Robert W. Haxall, Richmond, Va., on the Epidemics of Virginia and North Carolina.

23. Dr. William M. Boling, Montgomery, Ala., on the Epidemics of South Carolina, Georgia, Florida, and Alabama.

24. Dr. Edward H. Barton, Louisiana, on the Epidemics of Mississippi, Louisiana, Texas, and Arkansas.

25. Dr. Sutton, Georgetown, Ky., on the Epidemics of Tennessee and Kentucky.

26. Dr. Thomas Reyburn, Mo., on the Epidemics of Missouri, Illinois, Iowa, and Wisconsin.

27. Dr. George Mendenhall, Ohio, on the Epidemics of Ohio, Indiana, and Michigan.

The following gentlemen were appointed on the *Committee for Volunteer Communications*, viz.: Drs. George Hayward, J. B. S. Jackson, D. H. Storer, and Jacob Bigelow, of Boston; and Dr. Usher Parsons, of Providence, Rhode Island.

A full report of the proceedings will be found in the *Medical News* for June.

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Pennsylvania State Medical Society.—This Society held its Third Annual Meeting in Philadelphia, on the 28th, 29th, and 30th of May. Seventy-six delegates were present, representing nineteen counties. Highly interesting reports were received from the Philadelphia, Berks, Chester, Huntingdon, Blair, Erie, and Mercer County Societies, prepared in compliance with a resolution adopted at the previous session, requesting county societies to furnish annually reports on the state of health, the medical topography, the occurrence and progress of contagious and epidemic disorders, within their respective limits, and such other medical intelligence as may be interesting to the State Society.

After reading the reports, and transacting other matters of business, a full report of which will be found in the *Medical News* for the present month, the Society adjourned, to meet in Philadelphia on the last Wednesday in May, 1852.

After the close of the session the delegates were entertained by the physicians of Philadelphia, at a supper at the Sansom St. Hall, on which occasion some excellent speeches were made, and the best feelings displayed.

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Statistics of the Medical Colleges of the United States for the Session of 1850–51.

	No. of students.	No. of graduates.
Medical School of Maine	51	
Dartmouth Medical College, N. H.		
Medical College of Castleton, Vt.	153	64
Vermont Medical College		
Medical Department of Harvard University, Mass.		10
Berkshire Medical Institute		
Medical Institute of Yale College	38	11
Med. Dep. Univ. State of New York, (Coll. Phys. and Surg.)	230	63
Medical Department Univ. City of New York	411	116
Albany Medical College	92	24
Geneva Medical College	101	
Med. Dep. University of Buffalo, N. Y.	115	30
Medical Department, University of Pennsylvania	466	167
Jefferson Medical College	504	225
Med. Dep. of Pennsylvania College		36
Philadelphia College of Medicine (two sessions)	244	72
Medical Department, University of Maryland		45
Med. Dep. of Washington University, Md.		13
Med. Dep. Columbian College, D. C.		
Med. Dep. University of Virginia	93	26
Med. Dep. of Hampden Sydney College, Va.	90	26
Winchester Medical College, Va.		
Medical College of State of South Carolina	229	65

	No. of students.	No. of graduates.
Medical College of Georgia	159	50
Med. Dep. University of Louisiana		37
Memphis Medical College		
Medical Department of Transylvania University		
Med. Dep. University of Louisville	282	81
Medical College of Ohio	186	58
Starling Medical College, Ohio	125	35
Med. Dep. Western Reserve College, Cleaveland	202	60
Indiana Medical College		
Indiana Central Medical College		
Rush Medical College	132	30
College of Physicians and Surgeons of the Iowa University		10
Med. Dep. Univ. State of Missouri		33
Med. Dep. St. Louis University		19
Madison Medical College, Wis.		
New York Medical College	60	12
University of Michigan	9	7

GRADUATES OF THE UNIVERSITY OF PENNSYLVANIA,

APRIL, 1851.

At a Public Commencement, held April 5th, 1851, in the Musical Fund Hall, Locust Street, the degree of Doctor of Medicine was conferred by the Rev. John Ludlow, D. D., Provost, upon the following gentlemen; after which an Address was delivered by William E. Horner, M. D., Professor of Anatomy.

NAME.	RESIDENCE.			ESSAY.
Abernathy, C. Clayton	Pulaski,	Giles,	Tenn.,	Marsh Miasm.
Albright, Francis G.	Churchtown,	Lancaster,	Pa.,	Enteric Fever.
Alstadt, Alfred L.	Marietta,	Lancaster,	Pa.,	Physical Effects of Heat and Cold.
Aymé, Henry	La Rochelle,	Charente Inf.,	France,	Physiology of Blood.
Baily, George	Philadelphia,		Pa.,	Fractures.
Baldwin, Robert F.	Winchester,	Frederick,	Va.,	Dyspepsia.
Banks, Edward G.	Clinton,	Hinds,	Miss.,	Pernicious Fever.
Barbee, Andrew R. Jr.	Luray,	Page,	Va.,	Pelvic vel Podalic Version.
Battle, James P.	Rocky Mount,	Edgecombe,	N. C.,	Necessity of Enlightened Medical Education.
Beall, Adam J.	Hamilton,	Harris,	Ga.,	Induction of Premature Labour.
Beaumont, Charles W.	Clarksville,	Montgomery,	Tenn.,	Consecutive Cardiac and Pulmonary Diseases.
Birkey, Thomas W.	Philadelphia,		Pa.,	Scarlatina.
Bizzell, James A.	Clinton,	Sampson,	N. C.,	Relation of the Red Blood Corpuscles, &c.
Blaker, Gilbert H.	Abington,	Montgomery,	Pa.,	Etiology and Pathology of Fever.
Blandy, Thomas R.	Newark,	New Castle,	Del.,	Mercury.
Brice, Walter	Youngsville,	Fairchild,	S. C.,	Human Blood.
Brickhouse, Wm. E.	Franktown,	Northampton,	Va,	Pneumonia.
Brinley, Putnam	Hartford,	Hartford,	Conn.,	Irritable Uterus.
Brown, Hugh	Amherst C. H.	Amherst,	Va.,	Puerperal Fever.
Brown, James W.	Framingham,	Middlesex,	Mass.,	Animal Heat.
Brown, William C.	Yanceyville,	Caswell,	N. C.,	Pneumonia.
Browning, John S.	Washington,	Rappahannock,	Va.,	Remittent Fever.
Brownson, Robert S.	Mercersburg,	Franklin,	Pa.,	Hemorrhoids.
Buck, Horace R.	Vicksburg,	Warren,	Miss.,	Spinal Irritation.
Buford, John	Pulaski,	Giles,	Tenn.,	Etherization.
Bull, John F.	Sandy Hook,	Harford,	Md.,	Cerated glass of Antimony.

NAME.	RESIDENCE.			ESSAY.
Cabell, Henry L.	Winchester,	Frederick,	Va.,	Enteric Fever.
Catlett, George C.		Christian,	Ky.,	Febris Puerpera.
Christy, John T.	Hollidaysburg,	Blair,	Pa.,	Enteric Fever.
Clanton, William H.	Warsaw,	Sumpter,	Ala.,	Scarlatina.
Clardy, John D.	Longview,	Christian,	Ky.,	Diagnosis and Treatment of Enteric Fever.
Conway, William A.	St. James Parish,		La.,	Acute Dysentery of Tropical climates.
Corse, James M.	Philadelphia,		Pa.,	Abortion and Sterility.
Corson, Thomas J.	New Hope,	Bucks,	Pa.,	Health *versus* Fashion.
Cox, J. Barton	New Orleans,		La.,	Pneumonia.
Craig, B. Faneuil	Philadelphia,		Pa.,	Phenomena of Human Vision.
Crane, T. Chandler	Truro,	Colchester,	N. Scotia,	Nausea Marina.
Crowel, Elisha	West Philad'a,		Pa.,	Inflammation.
Cummings, John C.	Clinton,	Anderson,	Tenn.,	Medical Reform.
Cushing, Henry K.	Cleveland,	Cuyahoga,	Ohio,	Animal Chemistry.
Daniel, Richard P.	Jacksonville,	Duval,	Fla.,	Dengue as it appeared in Jacksonville in 1850.
Davis, William J.	Bayou Sara,	W. Feliciana,	La.,	Fœtal Circulation.
Denny, William H.	Ellicott's Mills,		Md.,	
Detwiler, Daniel D.	Trappe,	Montgomery,	Pa.,	Physiology of Digestion.
Dicken, Kenelm H.	Scotland Neck,	Halifax,	N. C.,	Opium: Its effects on the System.
Dillon, Robert F.	Zanesville,	Muskingum,	Ohio,,	Demonstrative Midwifery.
Dixon, Richard H.	Cambridge,	Dorchester,	Md.,	Intermittent Fever.
Dominique, John	Donaldsonville,	Ascension,	La.,	Pathologie du Fœtus pendant la vie intra-utérine.
Durney, Robert A.	Montgom'ville,	Montgomery,	Pa.,	Scarlatina.
Dye, David M.	Lewisburg,	Union,	Pa.,	Secale Cornutum.
Eborn, William B.	Greenville,	Pitt,	N. C.,	Erysipelas.
Erskine, Albert R.	Huntsville,	Madison,	Ala.,	Hernia.
Evans, David J.	Morgantown,	Berks,	Pa.,	Secale Cornutum as a Parturient agent.
Faulcon, Robert T.	Halifax,	Halifax,	N. C.,	Icterus.
Fish, Augustine H.	Trenton,	Mercer,	N. J.,	Delirium Tremens.
Flanner, Thomas U.	Mt. Pleasant,	Jefferson,	Ohio,	Tuberculosis.
Fleming, William J.	Philadelphia,		Pa.,	Compound Fracture.
Folkes, Miles W.	Vicksburg,	Warren,	Miss,	Epidemic Cholera.
Gallaway, Robert	Eagle Falls,	Rockingham,	N. C.,	Hæmoptysis.
Gebhard, Lewis H.	Philadelphia,		Pa.,	Strictures of Urethra.
Gilliam, Theophilus F.	Petersburg,	Dinwiddie,	Va.,	Pneumonia.
Goff, Thomas J.	Columbia,	Maury,	Tenn.,	Gun-shot Wounds.
Graves, George O.	Paris,	Bourbon,	Ky.,	Organic Heat.
Gray, William B.	Hernando,	De Soto,	Miss.,	Epidemic Cholera.
Green, James S., Jr.	Philadelphia,		Pa.,	Ergota.
Green, Francis V.	Philadelphia,		Pa.,	Diseases of the Heart.
Gullett, Thomas F.	Aberdeen,	Monroe,	Miss.,	Hemorrhagic Diathesis.
Hagner, D. R.	Washington,		D. C.,	The Eye and its Functions.
Hammond, George W.	Fincastle,	Botetourt,	Va.,	Enteric Fever.
Harrison, Randolph	Cartersville,	Cumberland,	Va.,	Pericarditis.
Harrison, Virginius W.	Garysville,	Prince George,	Va.,	Hepatitis.
Hart, Harry C.	Philadelphia,		Pa.,	Lithiasis.
Harvey, John, Jr.	Newberne,	Craven,	N. C.,	Ether.
Henderson, Francis M.	Salisbury,	Rowan,	N. C.,	Hysteralgia.
Henry, Thomas G.	Hopkinsville,	Christian,	Ky.,	Bilious Fever.

NAME.	RESIDENCE.			ESSAY.
Herring, James B.	Lewistown,	Mifflin,	Pa.,	Empiricism.
Hicks, James W.	Oxford,	Granville,	N. C.,	Phthisis Africana.
Hicks, John T.	Fish Dam,	Wake,	N. C.	Etiology of Miasmatic Fevers.
Hodge, Ambrose W.	Decatur,	Meigs,	Tenn.,	Study of Medicine.
Hodges, Jas. Gregory	Portsmouth,	Norfolk,	Va.,	Acute Peritonitis.
Horner, Frederick, Jr.	Warrenton,	Fauquier,	Va.,	Enteric Fever.
Jackson, Cartwright C.	E. City,	Pasquotank,	N. C.,	Enteric Fever.
Jackson, Thomas J.	Liberty,	Amite,	Miss.,	Intermittent Fever.
Jones, Lafayette	Henderson,	Henderson,	Ky.,	Pneumonia.
Jones, Zebedee R.	Philadelphia,		Pa.,	Menstruation.
Kennedy, William	Belvidere,	Warren,	N. J.,	Amenorrhœa.
Kennedy, William E.	Chattanooga,	Hamilton,	Tenn.,	Medical Etiquette.
Kieffer, Stephen B.	Mercersburg,	Franklin,	Pa.,	Science of Prescription.
Lane, William C.	Chambersburg,	Franklin,	Pa.,	Dignity of Medicine.
Lassiter, Daniel W.	Petersburg,	Dinwiddie,	Va.,	Inguinal Hernia.
Lichtenthaler, Henry A.	New Berlin,	Union,	Pa.,	Dysentery.
Little, Benjamin Rush	Mercersburg,	Franklin,	Pa.,	Nervous System as a source of Funct. and Org. Disease.
Logan, Thomas H.	Washington,	Washington,	Pa.,	Sunlight.
Maiben, Frank	Claiborne,	Monroe,	Ala.,	Remittent Fever.
Mayo, Edward C.	Cartersville,	Cumberland,	Va.,	Gonorrhœa.
Molony, Alvah J.	Norristown,	Montgomery,	Pa.,	Puerperal Fever.
Moss, Andrew W.	Lewistown,	Mifflin,	Pa.,	Water.
Mowrer, Peter A.	East Vincent,	Chester,	Pa.,	Nitrogen Gas.
M'Cain, John S.	Greenwood,	Carrol,	Miss.,	Mutual dependence of the Heart and Lungs.
M'Combs, William H.	Nashville,	Davidson,	Tenn.,	Inflammation of the Os and Cervix Uteri.
M'Gowan, William D.	Ligonier,	Westmoreland,	Pa.,	Cold as a Therapeutic Agent.
Newcomer, Frisby S.	Chambersburg,	Franklin,	Pa.,	Origin of Medicine, &c.
Nuckolls, Robert N.	Tuskegee,	Macon,	Ala.,	Physometra.
Otis, George A., Jr.	Richmond,	Henrico,	Va.,	Eccentric Hypertrophy of the Heart.
Parke, J. Siter	Downingtown,	Chester,	Pa.,	Cod-liver Oil.
Pettit, William	Philadelphia,		Pa.,	Climate of Lake Superior and its effects on Pulm. Diseases.
Pool, William G.	Elizabeth City,	Pasquotank,	N. C.,	Phthisis.
Porter, Charles C.	Calais,	Washington,	Me.,	Asthma.
Porter, George W.	Philadelphia,		Pa.,	Menstruation.
Potter, Thomas B.	Bellefonte,	Centre,	Pa.,	Enteric Fever.
Potts, Richard	Frederick,	Frederick,	Md.,	Vis Medicatrix Naturæ.
Powell, Sidner A.	Milton,	Caswell,	N. C.,	Acidum Arseniosum.
Provan, Mathew P.	Bayou Sara,	West Feliciana,	La.,	Physiological effects of Digitalis.
Quick, Jacob	N. Brunswick,	Somerset,	N. J.,	Dysentery.
Raney, George M.	Petersburg,	Prince George,	Va.,	Pericarditis.
Randolph, Peter	Bayou Sara,	W. Feliciana,	La.,	Gastritis.
Randolph, Thomas G.	Hopkinsville,	Christian,	Ky.,	Pulmonary Consumption.
Reynolds, D. Elliott	Mercersburg,	Franklin,	Pa.,	Anæsthesia.
Rhoads, James E.	Philadelphia,		Pa.,	Puerperal Insanity.
Richards, Charles H.	Georgetown,	Sussex,	Del.,	Bilious Remittent Fever.
Richmond, Stephen T.	Leasburg,	Caswell,	N. C.,	Scarlatina.
Robertson, Wm. H., Jr.	Winterpock,	Amelia,	Va.,	Concussion and Compression of Brain.

NAME.	RESIDENCE.			ESSAY.
Robinett, G. Herman	Philadelphia,		Pa.,	The Urine.
Rowan, A. James	Natchez,	Adams,	Miss.,	Therapeutical Application of Opium.
Sanders, Richard W.	Jackson's Ferry,	Wythe,	Va.,	Phlegmasia Dolens.
Scales, John R.	Triune,	Williamson,	Tenn.,	Food.
Scholl, Alfred K.	Philadelphia,		Pa.,	Medical Abstractions.
Selser, Isaac M.	Vicksburg,	Warren,	Miss.,	Inflammation.
Sharpe, Thomas S.	Maysville,	Mason,	Ky.,	Endocarditis.
Sherrod, John W.	Hamilton,	Martin,	N. C.,	Colo-rectitis.
Shipp, George P.	Natchez,	Adams,	Miss.,	Dysentery.
Smith, Caswell L.	Clinton,	E. Feliciana,	La.,	Enteric Fever.
Smith, Charles G.	Exeter,	Rockingham,	N. H.,	Diabetes.
Smith, Columbus D.	Newman,	Coweta,	Ga.,	Management of Pregnancy.
Smith, Edward A.	Worcester,	Worcester,	Mass.,	Diseases of Insanity.
Soule, Nicholas E.	Exeter,	Rockingham,	N. H.,	Scarlatina.
Stanfield, Josiah A.	Leasburg,	Caswell,	N. C.,	Merocele.
Stidham, Joseph P.	Wilmington,		Del.,	Hepatic Phthisis.
Stillé, Albert Owen	Philadelphia,		Pa.,	Urea.
Tilden, Edwin M.	Denton,	Caroline,	Md.,	Peritonitis.
Tolson, Thomas T.	Stanford,	Lincoln,	Ky.,	Inflammation.
Tryon, Percival J.	Rehrersburg,	Berks,	Pa.,	Fracture of Skull, &c.
Turner, James H.	Front Royal,	Warren,	Va.,	Miasma.
Turney, Samuel D.	Circleville,	Pickaway,	Ohio,	Ascites.
Upshur, Thomas W.	Norfolk,		Va,	Gun-shot Wounds.
Vogdes, Edward W.	Philadelphia,		Pa.,	Practical Pharmacy.
Wall, Thos. W.	Winchester,		Va.,	Ophthalm. Neonatorum.
Waller, Obadiah	Nashville,	Davidson,	Tenn.	Diagnosis and Treatment of Typhus and Typhoid Fevers.
Wanner, Charles H.	Kutztown,	Berks,	Pa.,	Enteric Fever.
Ware, James T.	Yanceyville,	Caswell,	N. C.,	Idiopathic Erysipelas.
Watters, John Henry	Bel-Air,	Harford,	Md.,	Germ Force.
White, Coleman	Wilton,	Granville,	N. C.,	Pneumonia.
White, Wm. Andrew	Bent Creek,	Appomattox,	Va.,	Asphyxia.
Whitehill, James C.	Marietta,	Lancaster,	Pa.,	Cinchonia as a Tonic and Antiperiodic.
Williams, William J.	Barboursville,	Orange,	Va.,	Epilepsy.
Williamson, James	Portsmouth,	Norfolk,	Va.,	Lobular Pneumonia.
Wilson, Augustus	St. Jago de Cuba,		Cuba,	Yellow Fever.
Wilson, James S.	M'Veytown,	Mifflin,	Pa.,	Effects of Habit.
Wiseman, James W.	Lexington,	Davidson,	N. C.,	Menstrual Secretion.
Wishart, J. Wilson	Washington,	Washington,	Pa.,	Animal Temperature.
Wright, A. Wesley	Philadelphia,		Pa.,	Absorption of the Placenta.

At a Public Commencement, held July 3d, 1850, the Degree of Doctor of Medicine was conferred on the following gentlemen.

NAME.	STATE.	ESSAY.
Burwell, John D.	Virginia,	Variola.
Denison, James H.	Nova Scotia,	Acute Gastritis.
Johnson, Mayhew	New Jersey,	Puerperal Peritonitis.
M'Cree, Cruser A.	North Carolina,	Acute Gastritis.
M'Eachin, Charles	Alabama,	Fractures.
Wiggins, Blake W.	North Carolina,	Intermittent Fever, &c.

TOTAL, 167.

UNIVERSITY OF PENNSYLVANIA, MEDICAL DEPARTMENT.

EIGHTY-SIXTH SESSION, 1851-52.

The Lectures will commence on MONDAY, OCTOBER the 6th, and terminate about the end of March ensuing.

Theory and Practice of Medicine, - - -	By GEORGE B. WOOD, M.D.
Anatomy, - - - - - - - - -	" WILLIAM E. HORNER, M.D.
Materia Medica and Pharmacy, - - - -	" JOSEPH CARSON, M.D.
Chemistry, - - - - - - - - - -	" JAMES B. ROGERS, M.D.
Surgery, - - - - - - - - - -	" WILLIAM GIBSON, M.D.
Obstetrics and the Diseases of Women and Children,	" HUGH L. HODGE, M.D.
Institutes of Medicine, - - - - - -	" SAMUEL JACKSON, M.D.

Clinical Instruction at the Pennsylvania Hospital, by GEO. B. WOOD, M. D., and by GEO. W. NORRIS, M. D.

Demonstrative Instruction in Medicine and Surgery by the Professors of the Medical Faculty, assisted by W. W. GERHARD, M.D., and HENRY H. SMITH, M.D.

Practical Anatomy, by JOHN NEILL, M.D., Demonstrator.

Amount of Fees for Lectures in the University, - - - - - -	$105
Matriculating Fee (paid once only), - - - - - - -	5
Hospital Fee, - - - - - - - - - - - -	10
Practical Anatomy, - - - - - - - - - - - -	10
Graduating Fee, - - - - - - - - - - - -	30

W. E. HORNER, M.D., *Dean of the Medical Faculty,*
June 15, 1851. 386 *Chestnut Street, above Thirteenth, opposite U. S. Mint, Philad.*

MEDICAL DEPARTMENT OF HAMPDEN SIDNEY COLLEGE,

RICHMOND, VA.

The FOURTEENTH annual course of Lectures will be commenced on Monday, the 13th of October, 1851, and continue until the 1st of the ensuing March. The Commencement for conferring degrees will be held about the middle of March.

R. L. BOHANNAN, M. D., Prof. of Obstetrics and Diseases of Women and Children.
L. W. CHAMBERLAYNE, M. D., Professor of Materia Medica and Therapeutics.
S. MAUPIN, M. D., Professor of Chemistry and Pharmacy.
CHARLES BELL GIBSON, M. D., Professor of Surgery and Surgical Anatomy.
CARTER P. JOHNSON, M. D., Professor of Anatomy and Physiology.
DAVID H. TUCKER, M. D., Professor of Theory and Practice of Medicine.
ARTHUR E. PETICOLAS, M. D., Demonstrator of Anatomy.

The study of Practical Anatomy may be prosecuted with the most ample facilities, and at very trifling expense.

Clinical lectures are regularly given at the College Infirmary, and Richmond Almshouse. The Infirmary, under the same roof with the College, and subject to the entire control of the Faculty, is at all times well filled with medical and surgical cases, and furnishes peculiar facilities for clinical instruction. Many surgical operations are performed in presence of the class; and the students being freely admitted to the wards, enjoy, under the guidance of the Professors, unusual opportunities for becoming familiar with the symptoms, diagnosis, and treatment of disease.

EXPENSES.—Matriculation fee $5; Professors' fees $105; Demonstrator's fee $10; Graduation fee $25.

The price of Board, including fuel, lights, and servants' attendance, is usually $3 or $3 50 per week.

The catalogue, &c., containing fuller information concerning the institution, will be forwarded to those applying for it, or specific inquiries will be answered by letter.

Address S. MAUPIN, M. D., *Dean of the Faculty.*

JEFFERSON MEDICAL COLLEGE.

Session of 1851–52.

The regular Course of Lectures will commence on Monday, the 13th of October, and continue until the first day of March. The ANNUAL COMMENCEMENT for conferring degrees will be held *early in March*, instead of at the end of the month, as formerly.

ROBLEY DUNGLISON, M. D., Prof. of Institutes of Medicine, &c.
ROBERT M. HUSTON, M. D., Prof. of Materia Medica and General Therapeutics.
JOSEPH PANCOAST, M. D., Prof. of General, Descriptive, and Surgical Anatomy.
JOHN K. MITCHELL, M. D., Prof. of Practice of Medicine.
THOMAS D. MÜTTER, M. D., Prof. of Institutes and Practice of Surgery.
CHARLES D. MEIGS, M. D., Prof. of Obstetrics and Diseases of Women and Children.
FRANKLIN BACHE, M. D., Prof. of Chemistry.
ELLERSLIE WALLACE, M. D., Demonstrator of Anatomy.

Every Wednesday and Saturday in the month of October, and during the Course, Medical and Surgical cases will be investigated, prescribed for, and lectured on before the class. During the past year, *nineteen hundred and seventy-nine* cases were treated, and *two hundred and seventy-three* operations performed. Amongst these were many major operations—as lithotomy, amputation of the leg, arm, &c., extirpation of the eye and mamma, trephining, extensive plastic operations, resection of the femur for ankylosis, &c. &c.

The Lectures are so arranged as to permit the student to attend the Lectures and Clinical demonstrations at the Pennsylvania Hospital.

On and after the 1st of October, the dissecting-rooms will be open, under the direction of the Professor of Anatomy and the Demonstrator.

FEES.

Matriculation, which is paid only once, - - - - -	$5 00
Each Professor, $15, - - - - - - - - - -	105 00
Graduation, - - - - - - - - - -	30 00

The number of Students during the last session was 504; and of Graduates 227.

R. M. HUSTON, M. D.,
July, 1851. *Dean of the Faculty*, No. 1 Girard Street.

MASSACHUSETTS MEDICAL COLLEGE.

The Medical Lectures of Harvard University will commence at the Massachusetts Medical College in Boston, on the first Wednesday in November, and continue four months.

Obstetrics and Medical Jurisprudence by - -	WALTER CHANNING, M. D.
Materia Medica and Clinical Medicine by - -	JACOB BIGELOW, M. D.
Theory and Practice of Medicine by - - -	JOHN WARE, M. D.
Pathological Anatomy by - - - - -	JOHN B. S. JACKSON, M. D.
Anatomy and Physiology by - - - -	OLIVER W. HOLMES, M. D.
Principles and Operations of Surgery by - -	HENRY J. BIGELOW, M. D.
Chemistry by - - - - - - - -	J. P. COOKE, A. M.

Clinical Lectures are delivered at the Massachusetts General Hospital three times a week by the Professors of Clinical Medicine and of Surgery. Surgical operations are very numerous, performed weekly in the presence of the class in the operating theatre. The safe and effectual practice of etherization, a discovery first made in Boston, and matured and established in the Massachusetts General Hospital, is practically taught in this School.

Practical Anatomy is amply provided for by the most liberal arrangements. The anatomical museum is one of the largest and richest in the United States, and has a fund of $5,000 for its increase. The Eye and Ear Infirmary, and other charities, are open to students.

The professors of Pathological Anatomy, of Surgery, and of Chemistry, are now pursuing their medical inquiries in Europe, but are expected to return in season to be present at the opening of the coming course.

Fees for the whole Course, $80. Matriculation, $3. Dissecting Ticket, $5. Graduation, $20. Hospital and Library gratuitous.

The TREMONT STREET SCHOOL for private pupils, having all the advantages of the Hospital, Dissecting-Room, and of daily recitations throughout the year on the branches of medical science, is conducted by Drs. Bigelow, Storer, Jackson, Holmes, and H. J. Bigelow, four of whom are Physicians and Surgeons of the Hospital.

MEDICAL DEPARTMENT OF PENNSYLVANIA COLLEGE.

Ninth, below Locust Street, Philadelphia.—Session 1851–52.

The annual course of Lectures will commence on Monday, October 13th, and continue until the 1st of March ensuing.

FACULTY.

Principles and Practice of Medicine, - - -	William Darrach, M. D.
Obstetrics and the Diseases of Women and Children,	John Wiltbank, M. D.
Materia Medica and Pharmacy, - - - -	Henry S. Patterson, M. D.
Anatomy and Physiology, - - - - -	William R. Grant, M. D.
Principles and Practice of Surgery, - - -	David Gilbert, M. D.
Medical Chemistry, - - - - - -	Washington L. Atlee, M. D.
Demonstrator of Anatomy, - - - -	W. H. Gobrecht, M. D.

There is a Medical and Surgical Clinic on every Wednesday and Saturday. Second course students will be furnished with tickets to the Medical and Surgical Clinic of the Pennsylvania Hospital *free of expense.*

FEES.

Matriculation (paid once only), - - - -	$5
For each ticket, - - - - - -	15
Graduation, - - - - - -	30

The Hall of Practical Anatomy will be open on the 1st of October.

For further particulars, address

DAVID GILBERT, M. D., *Registrar*,
124 Arch Street.

UNIVERSITY OF THE STATE OF MISSOURI,

MEDICAL DEPARTMENT.

Joseph N. McDowell, M. D., Professor of the Principles and Practice of Surgery, and of Clinical Surgery.

Richard F. Barret, M. D., Professor of Physiology and Materia Medica.

John B. Johnson, M. D., Professor of Clinical Medicine, and of Pathological Anatomy.

Abner Hopton, M. D., Professor of Chemistry and of Medical Jurisprudence.

S. Gratz Moses, M. D., Professor of Obstetrics and the Diseases of Women and Children.

Joseph N. McDowell, M. D., Professor of General, Descriptive, and Surgical Anatomy.

John S. Moore, M. D., Professor of the Principles and Practice of Medicine.

John Hodgen, M. D., Adjunct Professor of Surgery, and Demonstrator of Anatomy.

L. T. Pim, M. D., Adjunct Professor of Anatomy, and Prosector.

Peter Mason, *Curator.* Henry Williams, *Janitor.*

The twelfth session of this University opens on the 16th of October. Aggregate cost of tickets, $105. Matriculation fee, $5. Graduation fee, $20. Good boarding, from $2 to $3. For further information, address the Dean of the Faculty, or call upon him at his office, No. 44 Fourth Street, under the Planters' House.

St. Louis. JOHN S. MOORE, M. D., *Dean.*

UNIVERSITY OF LOUISVILLE—MEDICAL DEPARTMENT.

SESSION OF 1851-52.

The regular Course of Lectures will commence on the first day of November, and be continued, under the following arrangement, to the end of February ensuing.

Jedediah Cobb, M. D., Professor of Anatomy.

Lunsford P. Yandell, M. D., Professor of Physiology and Pathological Anatomy.

Samuel D. Gross, M. D., Professor of Surgery.

Henry Miller, M. D., Professor of Obstetric Medicine.

Lewis Rossus, M. D., Professor of Materia Medica and Therapeutics.

Benjamin Silliman, Jr., M. D., Professor of Chemistry and Toxicology.

Daniel Drake, M. D., Professor of the Theory and Practice of Medicine.

Tobias G. Richardson, M. D., Demonstrator of Anatomy.

Anatomical rooms open on the 1st of October.

Clinical instruction at the Marine Hospital, and cases also prescribed for and lectured on before the class, at the College, during the winter.

FEES.—For the whole course, collectively, $105. Matriculation ticket, $5. Dissecting ticket, $5. Hospital ticket, $5. Graduation fee, $5.

J. COBB, M. D., *Dean of the Medical Faculty.*

NEW YORK UNIVERSITY,
MEDICAL DEPARTMENT.

The Faculty of the New York University, in announcing their ensuing course of lectures, take great pleasure in stating that their large classes have rendered it necessary for them to erect a new Medical edifice. They have purchased a most eligible and spacious site in Fourteenth Street, near Union Square, on the centre of which, their Medical edifice is now in the course of erection, and will be completed by the 10th of September next. The building will consist of three capacious lecture-rooms, each capable of containing from five to six hundred persons, Museums, Dissecting-rooms, &c. &c. The Anatomical lecture-room will be lighted by a dome 40 feet in height. In a word, no expense nor labour has been spared to make this edifice—in point of comfort and convenience—all that could be desired by the friends of the Institution.

The Faculty are most happy to state that they have been enabled to appoint to the chairs of Surgery and Practice—made vacant as heretofore announced—two gentlemen of pre-eminent character, and they sincerely congratulate the friends of the University throughout the country on the increased strength which these appointments will give the Institution. Dr. Alfred C. Post, the Professor of Surgery, is an able and experienced surgeon, and his connection with the New York Hospital will afford additional facilities to the students of the University. Dr. Post is extensively engaged in surgical practice in the city of New York, and will bring to his chair a ripe experience. Dr. Meredith Clymer, the Professor of the Institutes and Practice, is a gentleman well known to the profession, both by his writings and connection with the Virginia and Philadelphia medical schools. He has also been for many years Professor of Clinical Medicine in the Philadelphia Hospital.

SESSION 1851–52.

The Lectures will commence on Monday, the 20th day of October, and be continued under the following arrangement until the last day of February.

Granville Sharpe Pattison, M. D., Prof. of General, Descriptive, and Surgical Anatomy.

Martyn Paine, M. D., Prof. of Materia Medica and Therapeutics.

Gunning S. Bedford, M. D., Prof. of Midwifery and the Diseases of Women and Children.

John W. Draper, M. D., Prof. of Chemistry and Physiology.

Alfred C. Post, M. D., Prof. of Principles and Operations of Surgery, with Surgical and Pathological Anatomy.

Meredith Clymer, M. D., Prof. of the Institutes and Practice of Medicine.

William Darling, M. D., Demonstrator of Anatomy.

George A. Peters, A. M., M. D., Prosector to the Professor of Surgery.

In order to afford ample opportunity to their pupils of studying disease practically, the faculty have organized three weekly cliniques, held in the College building.

1. A Surgical Clinique every Saturday, by Prof. Post.

2. A Medical Clinique every Wednesday, by Prof. Clymer.

3d. An Obstetric Clinique every Monday, by Professor Bedford. The most interesting diseases of women and children will be presented to the class, and fully lectured on by the Professor. The class will also have an abundant supply of Midwifery cases, to be attended at the houses of the patients. For these cliniques, no extra charge will be made.

In addition to these means of studying disease, the New York Hospital, the Bellevue Hospital, the Eye and Ear Infirmary, the various Dispensaries and Infirmaries are all accessible to the students.

Clinical Instruction is given every day at the New York Hospital, of which Prof. Post is one of the attending surgeons.

The Dissecting-Room will be open on the first day of October, and an ample supply of the material furnished. Students who pursue dissection, will be examined daily on Anatomy by the Demonstrator.

Fee for the full Course of Lectures, $105. Matriculation fee, $5. Practical Anatomy, $5. Graduation fee, $30.

The Spring commencement will take place early in March, and the Summer commencement early in July.

Good board can be obtained for $3 per week.

Students, on arriving in the city, will please call at the College Building, in Fourteenth Street, near Union Square, and inquire for the Janitor, Mr. Polman, who will conduct them to boarding-houses near the College.

JOHN W. DRAPER, M. D., *President of the Medical Faculty.*

P. S. Students who arrive in the city *before* the 1st of October, will please call at the former College Building, 659 Broadway, where they will find a person ready to conduct them to the new edifice.

COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

The Forty-fifth Session of this Institution will commence on Monday, October 13th, and close March 11th, 1852. The preliminary course begins September 29th, and continues two weeks.

FACULTY.

Alexander H. Stevens, M. D., LL.D., President, and Emeritus Professor of Surgery.

Valentine Mott, M. D., Emeritus Professor of Operative Surgery and Surgical Anatomy.

Joseph M. Smith, M. D., Professor of the Theory and Practice of Medicine and Clinical Medicine.

John Torrey, M. D., LL.D., Professor of Chemistry and Botany.

Robert Watts, M. D., Professor of Anatomy.

Willard Parker, M. D., Professor of Surgery.

Chandler R. Gilman, M. D., Professor of Obstetrics and the Diseases of Women and Children.

Alonzo Clark, M. D., Professor of Physiology and Pathology.

Elisha Bartlett, M. D., Lecturer on Materia Medica and Medical Jurisprudence.

Charles A. Isaacs, M. D., Demonstrator.

Lewis A. Sayre, M. D., Prosector of Surgery.

FEES.

Matriculation, ...	$5
Graduation, ...	25
Full Course of Lectures by all the Professors, . . .	105

R. WATTS, M. D., *Dean.*

NEW YORK MEDICAL COLLEGE.

The next Annual Course of Lectures in the New York Medical College, will commence on Monday, the 20th of October, 1851, and continue five months.

Horace Green, M. D., President of the Faculty, and Professor of the Theory and Practice of Medicine.

John H. Whittaker, M. D., Professor of General, Descriptive, and Surgical Anatomy.

Edwin Hamilton Davis, M. D., Professor of Materia Medica and Therapeutics.

B. Fordyce Barker, M. D., Professor of Midwifery and Diseases of Women and Children.

R. Ogden Doremus, M. D, Professor of Chemistry.

John Murray Carnochan, M. D., Professor of the Principles and Operations of Surgery with Surgical Pathology.

Edmund R. Peaslee, M. D., Professor of Physiology, Pathology, and Microscopy.

John Gallagher, M. D., Demonstrator of Anatomy.

A. M. Eisenlord, M. D., and Wm. B. Thompson, M. D., Prosectors to the Professor of Surgery.

A preliminary Course of Lectures will commence on Monday, the 6th of October, and continue until the commencement of the regular course.

On the Pathology and Diagnosis of the Diseases of the Reproductive Organs of Females, by B. F. Barker, M. D.

On Toxicological Chemistry, by R. O. Doremus, M. D.

On the Surgical Operations of the Eye, by J. M. Carnochan, M. D.

On Dental Pathology and Dental Surgery, by C. C. Allen, M. D.

The preliminary course will be free to all medical students, and medical men. The dissecting-rooms will be opened at the beginning of this course.

The advantages which New York offers for Clinical study far surpasses those of any other city. The students of this College can have access to the New York Hospital, Bellevue Hospital, and Emigrants' Hospital, as well as to the Eye and Ear Infirmary, and the various Dispensaries of the city. A Surgical and a Medical, and an Obstetrical Clinique will be held weekly by the Professors of these departments. Obstetrical cases and subjects for dissection are abundantly furnished for the students.

FEES.—Matriculation, $5. Demonstrator's Ticket, $5. The full course, $105. For the final examination, $30.

The candidate for graduation must be of the age of 21 years. He must have studied medicine under a respectable practitioner for three years. He must have attended two full Courses of Lectures, of which one must have been in this College, and he must present to the Faculty a thesis, in his own hand-writing, on some Medical or Surgical subject.

By the charter of the Institution a Graduate of this School can practice his profession in any part of the State without being subject to the annoyance of examinations from Medical Societies.

R. OGDEN DOREMUS,
Dean of the Faculty.

New York Medical College,
East Thirteenth Street, near Broadway.

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1851.

CONTRIBUTORS TO THIS VOLUME.

Geo. W. Baskin, M. D., *of Mercer, Pa.*

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W. J. Burnett, M. D., *of Boston.*

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Robert H. Cummins, *of Wheeling, Va.*

F. Donaldson, M. D., *of Baltimore.*

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J. W. C. Ely, M. D., *of Providence, R. I.*

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L. S. Joynes, M. D., *of Accomack, Va.*

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A. F. McIntyre, M. D., *of Philadelphia.*

R. McSherry, M. D., *Surgeon U. S. N.*

Wm. W. Morland, M. D., *Secretary Boston Society for Medical Improvement.*

John Neill, M. D., *Demonstrator of Anatomy in the University of Pennsylvania.*

Geo. W. Norris, M. D., *one of the Surgeons to the Pennsylvania Hospital.*

R. Randolph, M. D., *of Pennsylvania.*

John K. Rauch, M. D., *of Burlington, Iowa.*

F. W. Sargent, M. D., *one of the Physicians to Girard College for Orphans.*

Henry H. Smith, M. D., *Assistant Lecturer on Demonstrative Surgery in the University of Pennsylvania.*

David Stewart, M. D., *of Baltimore.*

A. B. Taylor, G. P., *of Philadelphia.*

W. Henry Thayer, M. D., *of Boston.*

J. Mason Warren, M. D., *one of the Surgeons to the Massachusetts General Hospital.*

Wm. Maxwell Wood, M. D., *Surgeon U. S. N.*

TO READERS AND CORRESPONDENTS.

The communications of Drs. Parkman, Squibb, Kelly, Cock, and Garrison shall appear in our next number.

Other papers have been received and are under consideration.

The following works have been received:—

Medical History of the Expedition to the Niger, during the years 1841–42: comprising an Account of the Fever which led to its abrupt termination. By James Ormiston McWilliam, M. D., Surgeon of H. M. S. Albert, and Senior Medical Officer of the Expedition. With plates. London, 1843. (From the Author.)

Correspondence on the subject of the Eclair; and of the Epidemic which broke out in the said vessel. Presented to the House of Commons by command of her Majesty, in pursuance to their Address of the 23d of Jan., 1846. (From Dr. McWilliam.)

The Health of London, during the six months terminating March 29, 1851. By John Webster, M. D., F. R. S., &c. (From the Author.)

History of the Epidemic of Cholera in Chatham, Rochester, and Strovel, in 1849. By Thomas Stratton, M. D., Edin., Member of Edinburgh Clinical Society; Surgeon Royal Navy. In a letter to Sir Wm. Burnett, M. D., Med. Direct. Navy. Edinburgh, 1851. (From the Author.)

Principles of Physiology, General and Comparative. By W. B. Carpenter. M. D., F. R. S., F. G. S., etc. Third edition, with 321 wood engravings. Phila.: Blanchard & Lea, 1851. (From the Publishers.)

Surgical Anatomy. By Joseph Maclise, Surgeon. With coloured plates. Phila.: Blanchard & Lea, 1851. Part IV. (From the Publishers.)

A Practical Treatise on the Diseases of the Lungs and Heart, including the Principles of Physical Diagnosis. By Walter Hayle Walshe, M. D., Prof. of the Principles and Practice of Medicine and Clinical Medicine, in University College, London. Phila.: Blanchard & Lea, 1851. (From the Publishers.)

Special Anatomy and Histology. By Wm. E. Horner, M. D., Professor of Anatomy in the University of Pennsylvania, &c. &c. Eighth edition, illustrated with anatomical figures, in two volumes. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

Hand-books of Natural Philosophy and Astronomy. By Dionysius Lardner, D. C., &c. &c. First Course: Mechanics—Hydrostatics—Hydraulics—Pneumatics—Sound—Optics. Illustrated by upwards of 400 engravings on wood. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

The Geological Observer. By Sir Henry T. De la Beche, C. B., F. R. S. Philadelphia: Blanchard & Lea, 1851.

The Laws of Health, in relation to Mind and Body. A Series of Letters from an old Practitioner to a Patient. By Lionel John Beale, F. R. C. S. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

The Transactions of the New York Academy of Medicine. Instituted 1847. Vol. I., Part I. Printed for the Academy. New York, 1851. (From the Academy.)

Mémoires sur la Digitaline. Par MM. Homolle et Quevenne. Rapports faits à l'Académie Nationale de Médecine le 8 Janvier, 1850, et le 4 Fevrier, 1851. Commissaires MM. Rayer, Soubeiran et Bouillaud Rapporteur. Paris, 1851.

Report of the Committee [of the Legislature of New York] on Medical Societies and Colleges, on petition of Dr. Wm. Turner, for penal enactments against bleeding. (From Dr. Tuthill.)

The New Jersey Medical Reporter, and Transactions of the New Jersey Medical Society. Edited by Joseph Parrish, M. D. July, Aug., Sept., 1851.

Report of the Louisiana State Medical Society on the Meteorology, Vital Statistics, and Hygiene of the State of Louisiana. By E. H. Barton, M. D. With an Appendix, showing the Experience of Life Insurance Companies in Louisiana. By H. G. Heartt. New Orleans, 1851. (From the Author.)

The Histories of the Colleges of Physicians and Surgeons, and of the Apothecaries' Company, including the Manuscript Annals of the London College of Physicians from 1682 to 1749, with the editor's plan of Medical Reform. Reprinted from the London Medical Examiner and one Faculty Journal. (From the Author.)

Proceedings of the Iowa State Medical and Chirurgical Society. Second Annual Meeting held in Fairfield, May 7th, 1851. Keokuk, 1851.

Proceedings of the 22d Annual Meeting of the Medical Society of Tennessee, held at Murfreesborough, April, 1851. Murfreesborough, 1851.

Minutes of the Proceedings of the Medical Society of the State of Georgia, at its Second Annual Meeting, held at Atlanta, on the 9th of April, 1851. Savannah, 1851.

Reports of the President and the Resident Physician of the Maryland Hospital [for the Insane] for the year 1850. Baltimore, 1850. (From Dr. John Fonerden.)

An Address on Medical Jurisprudence: its Claims to greater Regard from the Student and the Physician. Delivered before the Fellows of the Massachusetts Medical Society, at the annual meeting, May 28th, 1851. By David Humphreys Storer, M. D. Boston, 1851. (From the Author.)

Letter to the Right Honourable, the Earl of Shaftesbury, containing suggestions as to the Expediency of submitting certain Branches of Trade and Manufactures to Government Medical Inspection. By J. B. Harrison, M. R. C. S. in Manchester, 1851. (From the Author.)

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The Edinburgh Medical and Surgical Journal. July, 1851.

The British and Foreign Medico-Chirurgical Review. July, 1851.

The London Medical Gazette. June, July, 1851.

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The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. July, 1851.

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Medical Times. July, August, September, 1851.

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The Medical Examiner. Edited by F. G. Smith, M. D., and John B. Biddle, M. D. July, August, September, 1851.

The Stethoscope and Virginia Medical Gazette. Edited by P. C. Gooch, M. D. July, August, September, 1851.

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The New York Journal of Medicine and the Collateral Sciences. Edited by S. S. Purple, M. D. July, September, 1851.

Buffalo Medical Journal. Edited by Austin Flint, M. D. July, August, September, 1851.

The New York Register of Medicine and Pharmacy. Edited by C. D. Griswold, M. D. July, August, 1851.

The Charleston Medical Journal and Review. Edited and published by D. J. Cain, M. D. and F. Peyre Porcher, M. D. July, September, 1851.

The American Journal of Science and Arts. Conducted by Prof. B. Silliman,

B. Silliman, Jr., and Jas. D. Dana; and in the Department of Chemistry and Physics, by Dr. Wolcott Gibbs. July, September, 1851.

The American Journal of Dental Science. Edited by Chapin A. Harris, M. D., D. D. S., and Alfred A. Blandy, M. D., D. D. S. July, 1851.

Nordamericanischer Monatsbericht für Natur-und Heilkunde. Redigirt von Dr. W. Keller and Dr. H. Tiedemann, in Philadelphia, and Dr. Herzka, in New York. July, August, September, 1851.

The Western Journal of Medicine and Surgery. Edited by L. P. Yandell, M. D., and T. S. Bell, M. D. July, August, September, 1851.

The Western Lancet and Hospital Reporter. Edited by L. M. Lawson, M.D. and Geo. Mendenhall, M. D. July, August, September, 1851.

The Western Medico-Chirurgical Journal. Edited by J. F. Sanford, M. D., and S. G. Armor, M. D. June, July, August, 1851.

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The North Western Medical and Surgical Journal. Edited by John Evans, M. D. July, 1851.

Northern Lancet. Edited by Drs. H. Nelson, and F. J. D'Avignon. August, September, 1851.

The Ohio Medical and Surgical Journal. Edited by R. L. Howard, M. D. July, 1851.

Transylvania Medical Journal. Edited by E. L. Dudley, M. D., H. M. Bullitt, M. D., and B. J. Raphael, M. D. September, 1851.

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CONTENTS

OF THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

NO. XLIV. NEW SERIES.

OCTOBER, 1851.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. On the Pathology of Epidemic Dysentery. By Charles Frick, of Baltimore, Maryland. - - - - - - - - - 305

II. Cases of Amputation. By Jno. Fred. May, M. D., Professor of Surgery in the National Medical College of Washington, and one of the Surgeons to the Washington Infirmary. (With a wood-cut.) - - - 313

III. On a rarely observed, but very fatal Effect of Gastro-intestinal Revellents; especially of the Tartrate of Antimony and Potassa, and particularly in the treatment of Pneumonia. By Wm. M. Boling, M. D., of Montgomery, Alabama. - - - - - - - - 330

IV. Bernard's Recent Discoveries in Physiology. Reported by F. Donaldson, M. D., Baltimore, Maryland. - - - - - - - 337

V. Extracts from the Records of the Boston Society for Medical Improvement. By Wm. W. Morland, M. D., Secretary. - - - - - 364

VI. The Microscope, and Renal Affections; and particularly that condition of the Kidney known as Bright's Disease. By W. J. Burnett, M. D. - 373

VII. Case of Molluscum developed by an Injury, and presenting, under the Microscope, the Characters of Medullary Cancer. By Henry H. Smith, M. D., Assistant Lecturer on Demonstrative Surgery in the University of Pennsylvania. (With three wood-cuts.) - - - - - 396

VIII. On Nausea and Vomiting as a Symptom of Cardiac Polypus. By Geo. W. Baskin, M. D., Member of the American Medical Association. (Read before the Mercer County Medical Society.) - - - - 404

IX. Case of Stricture of the Œsophagus. By Robert H. Cummins, M. D., Wheeling, Virginia. - - - - - - - - - 409

REVIEWS.

X. A Practical Treatise on the Diseases and Injuries of the Urinary Bladder, the Prostate Gland, and the Urethra. By S. D. Gross, M. D., Professor of Surgery in the University of Louisville; Member of the American Medical Association; Author of "Elements of Pathological Anatomy," etc. etc.—With one hundred and six illustrations. Philadelphia: Blanchard and Lea, 1851. 8vo. pp. 726. - - - - - - 415

ART. PAGE
XI. Letters to a Candid Inquirer on Animal Magnetism. By William Gregory, M. D., F. R. S. E., Professor of Chemistry in the University of Edinburgh. Philadelphia: Blanchard and Lea, 1851. - - - 434

BIBLIOGRAPHICAL NOTICES.

XII. Surgical Anatomy. By Joseph Maclise, Surgeon. (With coloured plates.) Part IV. Philadelphia: Blanchard and Lea, 1851. - - 445
XIII. Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications. By Golding Bird, A. M., M. D., F. R. S., F. L. S., Assistant Physician, and Lecturer on Materia Medica and Therapeutics, at Guy's Hospital, &c. &c. &c. Second American, from the third and enlarged London edition. Philadelphia: Blanchard and Lea, 1851. - 447
XIV. Principles of Physiology, General and Comparative. By William B. Carpenter, M. D., F. R. S., F. G. S., etc. etc. etc. Third edition. With three hundred and twenty-one wood engravings. Philadelphia: Blanchard and Lea, 1851. 8vo. pp. 1098. - - - - - 448
XV. Transactions of the Medical Society of the State of Pennsylvania at its Annual Session, held in the city of Philadelphia, May, 1851. Vol. I. Published by the Society. 8vo. pp. 128. - - - - - 449
XVI. History of Medical Education and Institutions in the United States, from the first Settlement of the British Colonies to the year 1850; with a chapter on the Present Condition and Wants of the Profession, and the Means necessary for supplying those Wants, and elevating the Character, and extending the Usefulness of the Whole Profession. By N. S. Davis, M. D., Professor of Principles and Practice of Medicine in Rush Medical College, etc. etc. Chicago, 1851: 12mo. pp. 228. - - 451
XVII. The Laws of Health, in relation to Mind and Body: A Series of Letters from an Old Practitioner to a Parent. By Lionel John Beale, M. R. C. S. Philadelphia: Blanchard and Lea. 12mo. pp. 295. - 453
XVIII. The Outlines of General Pathology. By M. L. Linton, M. D., Professor of the Theory and Practice of Medicine in the Medical Department of the St. Louis University. St. Louis, 1851: 8vo. pp. 205. - 454
XIX. Lectures on Eruptive Fevers, as now in the Course of Delivery at St. Thomas's Hospital, in London. By George Gregory, M. D., Fellow of the Royal College of Physicians of London; Physician to the Small-pox and Vaccination Hospital at Highgate; Corresponding Member of the National Institute of Washington, etc. First American edition, with numerous additions and amendments by the author, comprising his latest views. With Notes and an Appendix, embodying the most recent opinions on Exanthematic Pathology; and also Statistical Tables and Coloured Plates. By H. D. Bulkley, M. D., Physician to the New York Hospital, Fellow of the New York College of Physicians and Surgeons, etc. etc. New York, 1851: S. S. and W. Wood. 8vo. pp. 376. - - 455
XX. Elements of General and Pathological Anatomy, presenting a View of the Present State of Knowledge in these Branches of Science. By David Craigie, M. D., F. R. S. E., etc. etc. Second edition, enlarged, revised, and improved. Philadelphia: Lindsay and Blakiston, 1851. 8vo. pp. 1072. - - - - - - - - 463
XXI. The Microscopist; or a Complete Manual on the Use of the Microscope: for Physicians, Students, and all Lovers of Natural Science. With illustrations. By Joseph H. Wythes, M. D. Philadelphia: Lindsay and Blakiston, 1851. - - - - - - - 464
XXII. The Philosophy of Vital Motion. By Charles Bland Radcliffe, M. B., Licentiate of the Royal College of Physicians; Lecturer on Vegetable Physiology and Botany at the Westminster Hospital, etc. etc. London, 1851. 8vo. pp. 158. - - - - - - 465
XXIII. Observations on the Diseases of the Rectum. By T. B. Curling, F. R. S., Surgeon to, and Lecturer on Surgery at the London Hospital, etc. London, 1851. - - - - - - - - 468

ART. PAGE
XXIV. On the Therapeutic Application of Electro-Magnetism in the Treatment of Rheumatic and Paralytic Affections. By Robert Froriep, M. D., Public Professor of General Surgery in the University of Berlin, &c. &c. Translated from the German, by Richard Moore Lawrence, M. D. London: Henry Renshaw, 1850. - - - - - - 470

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

FOREIGN INTELLIGENCE.

Anatomy and Physiology.

PAGE
1. Absence of the Pericardial Sac, the Heart lying in the Cavity of the Left Pleura. By Dr. Baly. 471
2. On the Persistence of Vital Properties in Limbs in the State of Cadaveric Rigidity. By M. Brown-Sequard. - - - 472

Materia Medica and Pharmacy.

3. On Antiseptics. By MM. Augend and Robin. - - - 473
4. On Local Anæsthetics. By M. Aran. - - - - - - 474
5. On the best Mode of preparing the Juice of Dandelion, so that it shall continue in perfect preservation throughout the year. By Mr. Donovan. - - - 475
6. On the Galvanic Cataplasms of Recamier. By Dr. Tilt. - - 477

Medical Pathology and Therapeutics and Practical Medicine.

7. Lungs showing the Arrest of Phthisis in the Third Stage of the Disease. By Dr. Quain. - 478
8. A Statistical Report upon Disease of the Heart, derived from a consideration of all the Cases admitted into St. George's Hospital during the last two years and a half. By D. Barclay. - 480
9. On Anasarca in Disease of the Heart. By M. Chomel. - - 481
10. Cases in which there was unusual Difficulty in the Diagnosis of Pleuritic Effusions. By T. A. Barker, M. D. - - - 482
11. Treatment of Erysipelas by the Muriated Tincture of Iron. By Dr. G. Hamilton Bell. - 482
12. Cod-Liver Oil in Gaol Cachexia. By Caleb Rose, Esq. - 483
13. Kousso. By Dr. Crisp. - 484
14. Case of Epilepsy treated by Tracheotomy. By W. H. Cane, Esq. - - - - - - 484
15. On the Causes, Consequences, and Treatment of Inflammation of the Veins. By Henry Lee, Esq. - - - - - 484
16. Effects of Molluscous Tumours when developed in the External Auditory Meatus. By Mr. Toynbee. - - - - 485
17. Case in which the Liver contained Air. By M. Piorry. - 485
18. On a New Epidemic Exanthem. By Dr. Laycock. - 486
19. On Eclampsia Nutans. By Dr. Faber. - - - - 487

Surgical Pathology and Therapeutics, and Operative Surgery.

PAGE

20. On the Application of Anæsthetic Remedies to Surgical Purposes. By Dr. Fleming. - 488
21. Acute Traumatic Tetanus treated with Chloroform. By R. G. H. Butcher, Esq. - - 498
22. On the Use of Collodion in Ingrowing Nail. By M. Meynier. - - - - - - 499
23. Some Observations on the Pathology of those Affections of the Ear which produce Disease in the Brain. By Joseph Toynbee, F. R. S. - - - - - 499
24. Treatment of Aneurism by Compression. - - - - 500
25. Case of Popliteal Aneurism treated by Compression; with Remarks, and a List of the Cases treated in Dublin. By O'B. Bellingham, M. D. - - - 500
26. Popliteal Aneurism; Pressure; Deligation of the Femoral Artery; Recovery. By Mr. Lawrence. - - - - - 501
27. Aneurismal Dilatation of the Popliteal Artery, treated by Pressure. By James Paget, M. D. - - - - - - 502
28. Popliteal Aneurism—Treatment by Pressure—Deligation of the Artery—Gangrene—Death. By Mr. Hilton. - - 503
29. Popliteal Aneurism Cured by Pressure on the Femoral Artery. By Dr. W. Ward. - - - 504
30. Account of the Dissection of a Case in which two Popliteal Aneurisms had been treated by Compression of the Femoral Arteries. By Prescott Hewett. 505
31. Treatment of Strictures of the Urethra. By G. J. Guthrie, Esq. - - - - - - 507
32. Four Cases of Ovariotomy. By Dr. Elkington. - - - 508
33. Case of Ovariotomy successfully performed. By John Beales, M. R. C. S. - - - 511
34. An Ovary removed by mistake for a Labial Cyst. By M. Guersant. - - - - - - 511
35. Serious Hemorrhage following Excision of the Tonsils. By M. Chaissaignac. - - - - 511
36. Diaphragmatic Hernia of the Stomach, Spleen, and Colon. - 512
37. Excision of the Astragalus, successfully performed for Fracture and Dislocation of that Bone. By M. Thore. - - 512

Midwifery.

38. On Obstetric Practice of the Vienna Lying-in Hospital. By Dr. Arneth. - - - - - 513
39. Method of inducing Premature Labour. By Dr. Moir. - 516
40. Induction of Premature Labour. By Dr. Simpson. - - 517
41. Epidemics of Puerperal Fever. By Dr. Arneth. - - - 518
42. On the Contagiousness of Puerperal Fever. By Dr. Simpson. - - - - - - - 521
43. Contagiousness of Puerperal Fever. By Dr. Peddie. - - 528
44. Causes and Treatment of Secondary Hemorrhage after Parturition. By Dr. M'Clintock. - 529

Medical Jurisprudence and Toxicology.

45. Poisoning with Oxalic Acid. By Dr. Didama. - - - 532
46. Note on the Poisonous Properties of the Milky Humour secreted by the Cutaneous Pustules of the Land Lizard and the Common Toad. By MM. Gratiolet and Cloez. - - - 542
47. On the Diminution in Weight of New-Born Infants. By Dr. Hoffman. - - - - - 533
48. On some Points in Medical Jurisprudence, deduced from a Series of Post-mortem Examinations for Judicial Purposes. By Dr. Casper. - - - - 533
49. Sale of Arsenic, Regulation Act. - - - - - - 534
50. Poisoning. - - - - 534
51. Poisoning by Strychnine. Tannin proposed as an Antidote. 534

PAGE

52. Case of Poisoning by Scheele's Green (on Paper Hangings). By Thomas Stewart Traill, M. D. - 535
53. On the Presence of Mineral Poisons in the Nervous System, as a Sequence of Acute Poisoning. By M. Roucher. - - 535
54. Homeria Collina. By L. Pappe, M. D. - - - - 536
55. Nicotine. By M. Orfila. - 536
56. On the Changes which Calomel undergoes in the Intestinal Canal. By Dr. George V. Oettinger. - - - - - 539
57. On Bromine as a Toxicological Agent. By Henry Wurtz. - 540

Miscellaneous.

58. On the Action of Water upon Lead. By J. Birkbeck Nevins, M. D. - - - - - - 540
59. Professor Faraday on Schönbein's Ozone. By Professor Faraday. - - - - - - 543
60. On Some Pathological Effects produced by Atmospherical Electricity. By Prof. Schönbein. 547

AMERICAN INTELLIGENCE.

Original Communications.

Wills' Hospital—Service of Dr. Littel—Cases discharged from April 1st to July 1st, 1851. By A. F. Macintyre, Resident Surgeon. - - - - - - 549
Statistics of Mortality of Baltimore, Maryland, in 1850. By L. S. Joynes, M. D. - - 553
On Henry's Magnesia. By David Stewart, M. D. - - - - 554

Domestic Summary.

Experiment of introducing Cancerous Matter beneath the Integument of a Frog. By Dr. Leidy. - - - - - - 555
New Method of Preventing Fats and Fixed Oils from becoming Rancid. By Dr. C. W. Wright. 555
In a peculiar appearance of the Tongue in Malarial Diseases. By Dr. Thomas C. Osborne. - 555
Femoral Aneurism cured by Compression. By Dr. H. N. Bennett. 557
Case of Hermaphroditism. By Dr. John Neill. - - - 558

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1851.

ART. I.—*On the Pathology of Epidemic Dysentery.* By CHARLES FRICK, of Baltimore, Maryland.

ALL authors heretofore who have written of dysentery, have shown a marked difference to exist between the symptoms of this disease as it occurs sporadically, and when its visitations assume an epidemic character. But both these varieties have been described as inflammation of the mucous membrane of the lower part of the alimentary canal, and the greater intensity in the symptoms of the disease in its epidemic form is supposed to depend on some particular and inexplicable constitution of the atmosphere. That dysentery is an inflammation we do not attempt to deny, but for reasons that will be presently adduced we are convinced that when it assumes an epidemic form, many cases occur in which there is a period varying from seven to ten days at the onset of the disease, when most of the so called symptoms of dysentery are present, when no true inflammation can be said to exist, and when the disease is particularly amenable to treatment. In the hope of exciting the attention of more able pathologists to a point which we cannot but think of decided practical importance, we have ventured the following remarks for your valuable journal. In the first place, let us glance at the symptoms that these two varieties present. The cases that occur sporadically we find make their appearance at all seasons of the year, but more particularly when those substances are used as diet whose immediate effect is to produce irritation of the alimentary canal. They may or may not be preceded by diarrhœa, and oftentimes obstinate constipation seems to be the immediate exciting cause. But in a short time violent tenesmus ensues with frequent calls to stool, and the discharges are found to consist of tenacious bloody mucus, inoffensive to the smell, and each operation varying from half a drachm to half an ounce in

quantity. In an individual in ordinary health, decided evidences of prostration do not make their appearance until ten days or two weeks have elapsed, unless the frequency of the discharges be very great; and the patient during the whole time complains of more or less pain on pressure of the abdomen, particularly in the left iliac region. From the very commencement there is a full strong pulse, hot skin, with other evidences of febrile action, and it is only when the severity of the disease has produced exhaustion in the vital powers, or convalescence is about to be established, that these symptoms subside. The mortality among these cases is not very great, and they are always benefited by decided antiphlogistic treatment, such as bloodletting, local or general, saline aperients, &c.

On the other hand, most epidemics of dysentery, as is well known, differ widely from the symptoms we have just detailed. During the summer and autumn months, a patient presents himself complaining of diarrhœa, the stools if examined are found to be of a light colour, more or less inclining to ash, and if kept a short time, bubbles of air are found escaping from the surface. Now, if the vessel containing the discharge be placed in an atmosphere of pure air, with a solution of acetate of lead in one watch glass and lime water in another, which may be readily accomplished by covering the whole with a bell glass, in a short time the black sulphuret of lead and carbonate of lime will be deposited, thus evidencing the presence of sulphuretted hydrogen and carbonic acid in considerable quantities in the fecal discharge. This result will occasionally take place in the stools of ordinary diarrhœa, but to a much less degree. In the patients thus applying for treatment one prominent symptom is particularly observable, that is, the prostration of strength, which is entirely out of proportion to the frequency and amount of the discharges. This diarrhœa may pass off without interference, may be relieved by treatment, or be followed by and alternated with the characteristic stools of dysentery, and in the variety of the disease we are now describing, it will be found on inquiry that few cases occur which have not been preceded, or are not accompanied by discharges having somewhat this character. And here we would remark that the presence of fecal matter in the stools, which in sporadic cases is always an evidence of improvement in the patient's condition, is by no means a symptom of the same importance, for stools having this character will often be found to alternate with discharges consisting almost entirely of bloody mucus for days. Tenesmus, although usually present, is not a symptom of the same intensity as in the other form, and the pain, instead of being referred to the verge of the anus, is described as being more of a colicky character, and usually precedes by a short period the desire of going to stool. The discharges consisting of an admixture of blood and mucus with numerous epithelium scales as ascertained by the microscope, are in general much less frequent, and larger in quantity, offensive to the smell, and oftentimes contain more or less of the ash-coloured discharge noticed above. As the disease advances they become more fluid, resembling in many instances ordinary flesh washings, or

better still the water in which bones and flesh have been macerating for some days in the dissecting-room. Febrile symptoms of a sthenic character we have never seen; on the contrary, as in the diarrhœa just spoken of, from the very first the prostration of strength is extreme, totally out of proportion to the frequency and amount of discharges, the skin is cold and covered with a clammy perspiration, the expression of face becomes anxious, and the pulse is weak and depressed. The results of treatment also contrast strongly with the other variety. Bloodletting, either local or general, is decidedly injurious, by adding to the prostration which is already too great, and saline purgatives increase the amount and frequency of the stools without altering their character, both of which remedies, as is well known, are in sporadic cases of dysentery of the utmost importance. Preparations of mercury are equally useless, for however valuable this medicine may be in cases occurring sporadically, the weight of opinion is decidedly against its use when the disease is of an epidemic type. Dr. James Johnson and Mr. Annesley, whose experience was derived from the dysentery as it appears in the East Indies, speak most decidedly of the efficacy of calomel, but on the other hand, Dr. Ballinghall, Mr. Walsh, who on the Ragoon expedition writes "that mercury only exasperated all the symptoms of dysentery," Dr. Frank and Sir James Macgrigor are all of the other opinion, and in this they are supported, we think, by most practitioners of any note at the present day.

If we consider attentively the collection of symptoms we have previously detailed, and note the very great mortality attendant upon them, even in the first few days, we cannot but be struck with the fact that the cause of death is not sufficiently evident, that the severity of the local disturbance is inadequate to produce a fatal result, and the idea constantly intrudes itself, that some morbid poison in addition to the local disease has an agency in producing the extreme prostration and subsequent fatal termination. But this idea has some facts to substantiate it, and is in reality deduced from the facts themselves. In the fall of 1849 we examined the bodies of five convicts in the Maryland penitentiary who had died, after a few days' illness, of this disease, and having the symptoms described above. In no one did we find decided evidences of inflammatory action. The rectum and lower part of the colon were ramified throughout with arborescent injection, and the shreds of mucous membrane, when drawn off by the forceps, did not exceed six or seven lines in length. But in no case was there either ulceration or sloughs, although the membrane throughout was more deeply coloured of a black or blackish-green than is observed in a healthy individual. The follicles also were much enlarged. On the other hand, in all cases of this disease occurring sporadically, and ending fatally, we have always found a local lesion sufficient to produce death.

The causes that produce these varieties differ equally. Isolated cases can be explained by the individual having been subjected to exposure, such as wet feet, a sudden check to the cutaneous exhalation, or more commonly still

to errors in diet. But in the epidemic variety no such distinct causes are necessary, although errors in diet, as we shall presently explain, increase the tendency to an attack. In the Maryland penitentiary, where nearly the same body of men are always confined, no case of disease of this character is likely to be passed over unobserved; and having kept, during the past and present summer, the correct range of the thermometer with the daily number of cases of diarrhœa, cholera morbus, and dysentery subjected to treatment, we are enabled to show that the correspondence between the two is very exact. In other words, taking the range of the thermometer to be between 78° and 95°, we have found the cases to increase and decrease almost in proportion to the elevation and depression of the temperature. And it must be remembered that this result occurred in individuals subjected almost day by day to the same articles of diet. We are well aware that this is no new fact, for the correspondence just detailed has, doubtless, been observed numberless times by different pathologists. Stoll, who makes the most decided difference between dysentery as it occurs in the summer, and at other seasons of the year, thinks the principal cause for this difference to be the high temperature that then prevails, but he explains the effects by supposing a sudden check to the perspiration to occur, as a consequence of which the internal membrane becomes congested and subsequently inflamed. The deduction that seems to us naturally to occur from it is, that the starting point of the morbid changes that occur in the disease, is to be found in some effect produced by excessive heat, or, in other words, depression of the vital powers.

Let us glance for a moment at the changes the food undergoes in digestion. It is taken into the stomach, supplied with gastric juice, biliary and pancreatic secretions; its nutritive part separated from the excrementitious portion, which is passed off through the rectum and colon. If all these secretions are supplied in due proportion, and the food remains the requisite time in the alimentary canal, no fat globules can be distinguished, all this substance having undergone digestion by the addition of the pancreatic secretion, nor do we ever discover anything resembling fermentation taking place, for this process is effectually prevented by the presence of the bile, as Bernard's recent experiments have proved. If, on the other hand, we take a portion of food consisting of the ordinary articles of diet, particularly those containing much sugar or vegetable acid, and subject it for some hours to the combined influence of heat and moisture, we will find nearly the same result occurring, as if the meal had been placed in the stomach, and the ordinary healthy secretions withdrawn; that is, we should find the food undergoing decomposition, numerous organic acids produced as a result of this decomposition, and large quantities of sulphuretted hydrogen liberated. A principal cause of this disease has long been acknowledged to be owing to impure air derived from the patient's own body, such, for instance, as is generated in the holds of vessels, hospitals, camps, and all those places where large bodies of men are collected together, or where their excrements are allowed to remain. Moreover we are

aware how common diarrhœa and colicky pains are in those students who spend much of their time in the dissecting-room, where animal decomposition is taking place. But we deduce from the facts just stated that the symptoms previously detailed are produced by the effects of some one of these morbid poisons being absorbed from the surface of the intestinal canal into the circulation, and from its known effects upon the human frame, it would seem that this agency might be attributed to the sulphuretted hydrogen. Whatever it may be, is not in reality a subject of vital importance, for after all it is but an effect of a cause still further removed. If we look upon some element of this character as the cause of the condition which produces the morbid discharges from the bowels, and, at the same time, acknowledge that this element, whatever it may be, is a consequence of the absence of the biliary and other secretions, we are forced to look for the starting point of the disease in the abolition or perversion of some power which controls these secretions. We have shown, in speaking of the treatment of this form of dysentery, how little power those remedies, whose admitted action is to produce increased biliary secretion, have over the disease. By forcing the liver to secrete more bile, a temporary benefit may be experienced, but it must be temporary only, inasmuch as the cause which first produced diminished secretion of this organ is still in existence. We have stated the effect of a high temperature in increasing the number and severity of the cases, independent of irritating articles of food, and it will be seen, on reference to any writer on the causes of epidemic dysentery, how great an influence in producing the disease may be ascribed to causes which depress the vital powers, whether they be physical or mental, such as fatigue, forced marches, the moral effect of a defeat in armies, &c. And we are aware, that although the mode of action of the different secretions is, in most cases, a chemical one, yet for their proper elimination how much is due to a requisite supply of nervous energy, so that when the latter is much depressed, secretion takes place in a much diminished quantity. An illustration of this is constantly observed in many cases of so-called cholera morbus. For instance, an individual, during the summer season, is in the habit of taking, day by day, nearly the same articles of food and in the same quantity. Under ordinary circumstances, no disturbance is produced, digestion is performed properly, and no inconvenience is experienced. But, let anything occur by which the nervous system becomes much debilitated, whether it be excessive bodily fatigue or mental depression, and we find in a short time that the same articles of food, which previously produced no disturbance, are rejected, almost undigested, by vomiting and purging. The explanation is, that as a consequence of nervous exhaustion, secretion does not take place, and the undigested food produces such decided irritation that nature endeavours to relieve the cause by ridding the patient of the effects, and we all recognize this principle in our treatment, first by advising our patients to abstain from food after being subjected to those causes which tend to produce this depres-

sion, and secondly in relying principally upon the use of stimulants when the disease itself is declared.

Having advanced so far and ascertained that in certain cases of dysentery, we are to look for the primary cause in depression of nervous energy, we will briefly detail the facts which led to these speculations, and endeavour to offer some suggestions for treatment which we are assured rest on a broader foundation than mere theory.

In the summer of 1850, during which dysentery prevailed to a great extent and was very fatal, we were called to a man who had had the disease for a period of three weeks. He was much emaciated, and so weak that his stools were passed in bed, and they varied in number from twenty to thirty in the twenty-four hours. They resembled in appearance ordinary flesh washings, and their odour was so offensive that his room was almost intolerable. This man was in such a condition of life that he had commanded the best medical treatment, and all the ordinary modes of purifying the atmosphere of his room had been observed. Thinking the patient's condition hopeless, but fearing that this state of things mights produce disease in other members of his family, and at the same time supposing that the offensive odour was produced by decomposition within the alimentary canal, it occurred to us to administer something that would prevent this decomposition and render the discharges less deleterious. We accordingly ordered naphtha and charcoal, the first from its known properties of preventing decomposition, the other for the purpose of absorbing the different gases as they were liberated. To our surprise the next day the stools had not only lost all their offensive odour, but contained some slight evidences of fecal matter. In a few days they were almost natural, and although no other remedy was administered, they continued so until convalescence, which owing to his excessive debility was much protracted, was fairly established. The remarkable recovery of this man, recalled to my mind the popular idea of the efficacy of powdered charcoal and burnt rice in dysentery, which I had heard advanced frequently, but had never attached much importance to, and I was inclined to give it a further trial. Abundant opportunities were presented, both in private practice and at the Maryland Penitentiary, but as no exact record was preserved until this summer, I will confine myself to those cases which have occurred in the Maryland Penitentiary since the first day of June, a period of seven weeks. During that time forty-six cases have been treated, thirty-one having occurred since the first day of July, a period of three weeks. No one of these cases has been fatal, and the most marked difference has been observed in the symptoms of the different varieties, the two extremes having been well marked, but the intermediate cases being more unsatisfactory. Rochelle salts followed by pills composed of strychnine, subnitrate of bismuth and morphia were administered to twenty-one of these forty-six cases. In thirteen the effect was perfectly satisfactory, the duration of the disease varying from twelve hours to three days. Five of the nine who were not benefited were made decidedly worse, the mucous and bloody

discharges increasing in quantity and frequency, while in the other four, during the administration of the salts loose feculent discharges were produced, but they immediately became dysenteric on its discontinuance. Some of these cases were treated with charcoal and naphtha, and in four of the five first mentioned the beneficial result was very decided, in the other the effect was negative. In twenty of the forty-six cases, charcoal and naphtha suspended in cinnamon water was given from the first. In fourteen of these the beneficial result was most decided, in two or three instances but one unhealthy stool being discharged after the first dose of the remedy. In the whole fourteen the stools became natural in the course of forty-eight hours. In four of the six others, the discharges became increased in quantity and frequency after a few doses of the charcoal and naphtha. Rochelle salts was then administered, and the almost immediate benefit in three of the four cases was very apparent. Every case not benefited by either of these modes of treatment we found exceedingly obstinate, and convalescence was delayed much beyond the usual time. Although our experience out of doors is not thus reducible to numbers, we can state that very nearly the same results have occurred, with the exception that the cases to be benefited by charcoal and naphtha were not so numerous. Even in this small record of cases the beneficial effects of the remedies employed may, we think, be perceived, but we are willing to admit that many and opposite modes of treatment might have restored the patient to health. Our object was, after having contrasted the symptoms and *post-mortem* appearances of dysentery as it makes its appearance under different conditions, and speculated upon the cause of this difference, to show that it was equally marked in the treatment of the two varieties. It is true that in all local inflammations a marked difference is observable between the cases of disease that occur sporadically, and when they assume an epidemic type. We are well aware that bloodletting, which is the sheet-anchor of safety in the treatment of pneumonia when it occurs sporadically, is absolutely injurious in some epidemics of this disease; but if a fatal result should ensue, decided evidences of inflammation will be found in both. That such is not always the case in dysentery, at least during the first week or ten days, we have already shown, nor indeed has it ever been denied by the highest authorities. Grisolle, in his "*Pathologie Interne*," describes dysentery as a disease characterized by colics more or less severe, by a frequent and almost constant desire to go to stool, and by the discharge of a small quantity of bloody mucus or reddish serum. In speaking of the *post-mortem* appearances he says, in the bodies of those persons who die in the first days of acute dysentery, the mucous membrane of the colon and rectum, sometimes even as far as the small intestine, is somewhat reddened, thickened and rather more friable than usual. The follicles of the colon are increased in size and their orifice is marked by a black point, and in addition to these changes the intestinal walls are found to be more or less œdematous. He then goes on to state that when the disease is further advanced, ulceration makes its appearance. Twining and Sir James

Macgrigor, on the contrary, in detailing the *post-mortem* appearances of dysentery as observed by them in the Peninsula and the East Indies, state that in every case examined, large and extensive ulceration was found to exist. This is readily explained by the fact that the cases did not prove fatal until eight or ten days after the commencement, or that the disease advanced with a rapidity to which in this latitude we are unaccustomed. Their results cannot, however, disprove that there is a stage, be its duration longer or shorter, which in a majority of cases readily yields to treatment, and if the cause be analogous or identical to what I have suggested the proper mode of treatment must occur to every sound thinking man.

We would, in conclusion, call your attention to the very marked similarity between the disease so fatal among children during the summer months, called cholera infantum, and the variety of dysentery we have been speaking of. Cholera infantum is confined almost entirely to cities, or where large numbers of children are crowded together. The number of cases bears a very exact ratio to the intensity of the temperature, and the child's strength is prostrated out of proportion to the quantity and frequency of the alvine evacuations, which at first consist either of undigested food, or light-coloured or greenish discharges. These continue for a certain length of time, and should the child die, no evidence of inflammation of the alimentary canal is revealed beyond a slight softening of the mucous membrane, and enlargement of the follicles, principally of the small intestine. If, however, the disease is further advanced, the character of the stools become changed, mucus and blood are occasionally observable, and the greenish discharges which, according to Dr. Golding Bird, contain altered blood, are more constant. A post-mortem examination of these cases shows that the follicles have become reddened as well as enlarged, many of them are ulcerated, and occasionally the mucous membrane itself has undergone the same change. In the treatment, many practitioners maintain that small doses of calomel exert the most decided beneficial effect; but the weight of authority seems to be opposed to this mode of treatment, most physicians counselling almost entire abstinence from drugs, and in their place advise close attention to those means which act by imparting tone and vigour to the nervous system, such as cold baths, removal to the country, or sea air, port wine, &c., and to these means my friend, Dr. Thomas Buckler, has, for a number of years, been in the habit of adding small doses of charcoal with most decided benefit. Our weekly tables of mortality throughout the summer and autumn, exhibit a very great correspondence between the deaths produced by this disease, and those occasioned by dysentery; and this we can readily realize when we consider that the producing causes of both are almost identical. The effects are found to differ principally from the difference of constitution that exists between children and adults.

The foregoing remarks have been intruded upon your readers merely for the purpose of calling their attention to a certain form of dysentery at a period when remedial measures may be of avail. We do not pretend that the

charcoal and naphtha suggested by us, will prove of as much importance as some other remedies administered for the same end; for, even admitting that sulphuretted hydrogen plays the decided part we have suggested; common alum, or better still, chloride of alumina will be found to answer a much better purpose. And in reality we are but then treating the effects of a cause which has been or is still in existence.

As it now stands, the treatment of epidemic dysentery is absolutely negative, if not decidedly injurious. Dr. Robert Williams in vol. ii. page 563, has collected and recorded the results of upwards of 32,000 cases of this disease, in which the mortality averages as much as one in every nineteen cases. And in the dysentery which prevailed in Edinburgh in 1828, Dr. Christison considers the mortality in eighty cases to have been one in four. In the military hospitals also at Namur in 1831, out of one hundred and seven cases, twenty-six died, or one in four. These cases could scarcely have done worse had all remedial means been omitted, and the cure trusted to the unaided efforts of nature.

It may be objected that sulphuretted hydrogen could not produce symptoms of such importance, because it is well known that quantities of it are taken into the stomach in many mineral waters without unpleasant consequences, but it must be remembered that the quantity of this gas taken into the stomach by drinking a large quantity of sulphuretted water is exceedingly small, and it, in all probability, is quickly destroyed by the chlorine of the common salt almost always present; while, on the contrary, if sulphuretted hydrogen be given off as we suggest it may be, it is liberated at a part of the alimentary canal far removed from any such influence.

Baltimore, *July* 24, 1851.

Art. II.—*Cases of Amputation.* By Jno. Fred. May, M. D., Professor of Surgery in the National Medical College of Washington, and one of the Surgeons to the Washington Infirmary. (With a wood-cut.)

Case I. *Scrofulous Degeneration of Femur.—Amputation at the Hip-Joint.*—In the early part of November, 1850, I was requested by Dr. Morgan, of this city, to visit Richard Eaton, who, he informed me, had been bedridden for many months, from disease of the os femoris and knee-joint. After examining the limb, I advised that he should be removed to the Washington Infirmary, for the purpose of having it amputated, to which he consented, and the following is an abstract of his case:—

Richard Eaton, aged 37, fisherman, entered the Washington Infirmary on the 5th of November, 1850.

In August, 1847, while on a fishing excursion down the river, discovered a small lump about the size of a filbert below the right knee. The swelling was accompanied with much pain, and continued to increase, until the entire joint and contiguous parts of the thigh were very much enlarged.

In March, 1850, it suppurated, and discharged very freely, which gave him some slight relief, but in the month of May he was obliged to confine himself to his bed, from which he has not arisen since that period. At this time there are as many as four deep sinuses extending down to the shaft of the bone, and opening by fungoid orifices on the thigh.

The thigh is throughout enormously enlarged, *to at least twice its natural size*, and is œdematous up to the groin, and very much inflamed in its middle and superior portion.

The knee-joint has long since been destroyed by ulceration, to such an extent, that the foot falls on either side, unless supported. The discharge of pus from the different sinuses and the joint is very great (at a moderate computation at least half a pint a day), and the part presents a most disgusting aspect, from the free generation of maggots in the limb and joint. His pulse is now 106. He has burning in the hands and soles of the feet regularly, as evening approaches. He had an attack of diarrhœa in July last, which was very severe, and lasted fourteen days. Since that time he has not been troubled with it. His digestive organs are now in a tolerably good condition, notwithstanding that he takes from three to six teaspoonfuls of laudanum every night, before he can get any rest.

With the exception of the diseased limb, his whole frame is very much emaciated, and in appearance he is anæmic.

He has a bedsore over the sacrum, about as large as a twenty-five cent piece, deep, and for several inches around it the integument presents an angry and livid colour. In his habits he has always been temperate.

A nutritious diet principally of animal food was ordered for him, and the following powder to be taken three times a day: ℞.—Quiniæ sulphat., ammon. carb., g. camph., āā gr. ij. M. To be taken each time in a tablespoonful of brandy. At night tinct. opii ʒiij, to compose and relieve him. I did not of course think it prudent to stop, although I diminished the opiate, to which he had been so long accustomed. His stomach revolting at the carb. ammoniæ and camphor, they were discontinued in a few days, and five grains of the sesquioxide of iron given with the quinine and brandy.

The bedsore was dressed with the cerat. zinci carb., and pressure removed from it by a circular cushion, and he was placed on an air bed.

This treatment was continued until the 14th of November, when, his condition having slightly improved, I decided on removing the thigh at the hip-joint, for the following reasons:—

1st. The soft parts are diseased to such an extent that it is impossible to get a proper covering for the bone, except in its upper portion, and even here, and as high up as the groin, the tissues are enfeebled and œdematous.

2d. The shaft of the femur can be detected in a very diseased state high up, and I believe from this fact, in connection with the state of the soft parts, and the long duration of the disease, that the cancellated structure of the entire bone is involved, and my colleagues concur with me in this opinion.

The patient, aware that he could live but for a few weeks, was perfectly willing to submit to the operation, though told that he might, in his debilitated condition, die on the table.

The operation was performed on the 14th of November, in the presence of the medical class and a number of professional gentlemen, in the following

way: The patient in a state of complete anæsthesia from chloric ether, was brought into the amphitheatre, and laid on a narrow table, the nates projecting well over its edge. The artery was compressed by an assistant with the thumb against the pubis. The limb (which from its size required to be supported by two assistants) was then slightly raised, and flexed upon the pelvis, so as to relax the muscles on the anterior and upper part of the thigh. The testicles being drawn well upwards out of the way, and the sound limb to the opposite side, a long and narrow one-edged knife nearly twelve inches in the blade was then introduced, a little above the *tuberosity* of the *ischium*, carried as near the neck of the bone as possible, and pushed out on the opposite side, about one inch and a half below the *anterior superior spinous process of the ilium*. A flap between six and seven inches long was now cut downwards, from the front of the thigh. The knife was of course passed much beneath the femoral vessels, and they were consequently not divided until the lower edge of the flap was being cut; this enabled an assistant to pass his hand into the upper part of the incision, back of the knife, and thus to grasp and securely compress the femoral artery *before* it was divided by the passage of the knife downwards. This flap was now raised and drawn forcibly upwards by the same assistant, the femoral artery being still so securely held by him that scarcely a drop of blood escaped from it or its branches. To prevent the fingers from slipping, a soft piece of rag was held against the cut surface. The thigh was now abducted and forcibly depressed by the two assistants having charge of it, so as to throw the head of the femur forwards, and from the acetabulum as much as possible, and the knife was carried across the capsular ligament, until it was freely divided. The head of the bone now started from the acetabulum, the round ligament was divided, the knife passed behind the head, and a posterior flap cut a little longer than the anterior. As soon as the limb was removed, the vessels in the posterior flap were compressed by sponges held against them, until they were separately tied. Ligatures were applied to them first, and then the femoral, the profunda, and smaller branches in the anterior flap were secured. Ligatures were applied in all to twelve arteries.

Hemorrhage having been completely arrested, the edges of the flaps, on account of their great size and weight, were approximated by four points of the twisted suture, with broad adhesive strips in the intermediate spaces, and water dressing was applied over the wound.

Not more than eight ounces of blood were lost in the operation.

The operation itself was performed in half a minute; and I was most ably assisted in it by my colleagues, Professors Miller, Johnston, and Stone, and Drs. Wotherspoon and Coolidge of the U. S. Army, to whom my thanks are due for the very important aid which they rendered me.*

The patient did not evince the slightest consciousness during the operation, and on being told, when he awoke, that the limb was removed, he expressed great surprise. The wound being dressed, he was removed to his bed, and

* Immediately after its removal the bone was sawed through longitudinally by Prof. Stone, and the entire cancellated structure extending through the trochanters, the neck, and the head, was found to be very much softened (cheesy) and filled with pus. The external table in this the upper third of the bone did not seem to be much involved, though below it was much affected, but the cancellous portion was throughout a mass of disease. The cartilages covering the head and lining the acetabulum were smooth and healthy in appearance. The soft parts were infiltrated with serum throughout the whole limb, which continued to ooze from it very freely for many hours after its removal. The muscles were pale and flabby, and in the lower half of the thigh they were blended together and disorganized.

the simple water dressing was ordered to be continued, and four teaspoonsful of tinct. opii were given to him at about 3½ P. M.; this being about the usual quantity which he was in the habit of taking, before he entered the Infirmary. 8 P. M. Pulse 98; not having been composed by the first dose of laudanum, ℥iij more were given.

November 15*th*, 10 A. M. Slept four or five hours during the night, and feels better; spirits good; pulse 96; took for breakfast tea and toast, and a soft boiled egg. Has been a great smoker before and during all his illness, and asks to be allowed a cigar—granted; at dinner chewed a few mouthfuls of beefsteak, and took some coffee and dry toast; dry toast and tea for supper. 9 P. M. Pulse 104 to 106. Soft compresses soaked in warm water, ordered to be applied to wound every few hours, and covered with oiled silk, to prevent too rapid evaporation. Bedsore dressed with the cerat. zinc. carb., and over this adhesive plaster. Ordered tinct. opii ℥iij.

16*th*. 10 A. M. Slept again about five hours during the night. Took coffee, dry toast and soft boiled egg for breakfast, and feels better. Pulse 90, soft and regular, and skin moist. Warm water dressing continued, and bedsore dressed as yesterday. At dinner, took a few stewed oysters with a cup of coffee and dry toast, and smoked a cigar. 8 P. M. Pulse 88; wound discharging quite freely; discharge thin, and slightly coloured. Took coffee and dry toast for supper. Ordered tinct. opii ℥iij.

17*th*. 10 A. M. Slept well last night. Pulse 88; same dressing to wound and bedsore, continued. Took out one of the sutures. Took same breakfast as yesterday, and with appetite. Wound looks well, and union appears to have taken place in a large portion of it. For dinner, chicken soup, and a small piece of boiled chicken, which he desires. Has had no passage from his bowels since the operation. Ordered ol. ricini ℥ss; mist. camph. ℥ij; aq. menth. q. s. M. Ft. haust. 7 P. M. Has had two healthy looking evacuations from bowels. Urine clear and healthy looking. Pulse 96; continue iron, brandy and quinine. At bedtime tinct. opii ℥iij.

18*th*. 10 A. M. Has slept well. Pulse 86; tongue moist and clean. Took same breakfast as yesterday. Removed remaining sutures, and applied fresh adhesive strips to sustain the edges of wound. Free discharge from it. Same dressing continued. Ordered half a pint of oysters for dinner. 8 P. M. Pulse 86; some pain in stump. Ordered tinct. opii ℥iij.

19*th*. 10 A. M. Pulse 100; has not slept well, but took his usual breakfast with appetite. Discharge from wound free, thin and brown. Same dressings continued. 8 P. M. Pain in stump; give ℥iij tinct. opii. Pulse 86; spirits good. Had a healthy and natural evacuation from bowels in the afternoon. Eat for dinner to-day two roasted Irish potatoes, and a small piece of roasted chicken, and smoked during the day two cigars.

20*th*. 10 A. M. Has slept some and looks better. Pulse 86; took his usual breakfast, only substituting tea for coffee. Wound discharges very freely. Same dressings to it continued. Ordered for dinner, half a pint of stewed oysters, with roasted potatoes, and allowed two cigars during the day. 8 P. M. Considerable pain in stump. Pulse 84. Ordered tinct. opii ℥iij.

21*st*. 10 A. M. Has passed a bad night, very restless and starting in his sleep. Countenance expressive of much suffering. Pulse 100; very free thin discharge from wound. Four of the ligatures on small vessels in the lower flap came away this morning, and considerable hemorrhage followed. Partially opened the wound, and removed a recent coagulum, and also a quantity of very dark and offensive coagulated blood, that had evidently oozed out soon after the operation, probably from the acetabulum, as it lay in con-

tact with it. Arrested the bleeding, which was quite free, and proved to be from the ischiatic artery. Re-applied water dressings, and ordered tinct. opii ℥iij. 8 P. M. Pulse 108; has taken his usual supper, and has a small stool to-day. Stump hot; apply cold water dressing.

22*d*. 10 A. M. Has had a good night. Pulse 102 to 104; eat his usual breakfast with relish. Stopped the brandy to-day, and ordered in its place a wineglassful of London brown stout, with five grains of protocarb. ferri, Vallet's (in place of the sesquioxide and quinine, which he has been taking), three times a day. Half a pint of stewed oysters for dinner, and may smoke his cigars as usual. 8 P. M. Pulse 102 to 104; easy, took his meals with a good relish to-day, and says he feels better and stronger. Ordered tinct. opii ℥iij; and ℥ij more to be taken in the night, if restless, and unable to sleep. The additional dose was allowed, because, for the two or three nights past, he has not been able to sleep as well as usual.

23*d*. 10 A. M. Slept well after taking the second opiate, being very restless before. Discharge from wound more consistent and healthy. Allowed for dinner a tender piece of beefsteak and two potatoes, and during the day two cigars. 8 P. M. Pulse 98; has had a very comfortable day, and is in good spirits. Tinct. opii ℥ijss, and a smaller dose to be repeated late if necessary.

The treatment which is here given, for the first nine days after the operation, was continued with slight variations for the four succeeding weeks. The last ligature came away on the 14th of December. On the 25th he sat up in bed, and on the 29th in a chair, and was wheeled about the room and passage. On the 31st of December, the stump was almost entirely healed, and he was able to sit up a couple of hours at a time, and on the 1st of January, he moved about the room on crutches, for the first time. From this period, he improved more rapidly in flesh and strength, and he left the Infirmary on the 26th of January. On the 17th of February I called at his house, and found that he was out, and able to attend to business in which he is at this time, July 18th, actively employed, and supporting by it a large family. The stump continues to be perfectly sound, and he says that his health is as good as it ever was. In all respects, he presents the appearance of a strong and vigorous man.

The preceding case is a striking illustration of the recuperative power possessed by the human system, in its recovery from the very lowest degree of prostration and disease, as soon as the cause which had produced this state was removed.

Every surgeon of experience must have occasionally witnessed the extraordinary reactive power which some constitutions manifest, when old or chronic sources of irritation are removed from them. A knowledge of this fact alone, encouraged me to undertake the foregoing operation, upon a patient so enfeebled and exhausted by protracted irritation, and the wasting discharges attendant on it,* that it hardly seemed possible he could live, after amputation at the hip joint; the most extensive mutilation to which the human

* The quantity of pus discharged from the limb I have stated to have been, at least, half a pint in 24 hours. The students in the Infirmary, who daily superintended the dressing of the part, have stated to me the amount much greater than I have reported it. I am sure from my own observation, that the discharge as reported, large as it may seem, falls below the amount of pus which the man daily lost.

system can be subjected. But knowing well that all shock to his system could be avoided by the wonderful agency of anæsthesia, and believing that the wound, however formidable and extensive, if he survived its immediate effects, could not be more oppressive to him than the mass of disease with which he was encumbered, were the main grounds upon which I based my hopes for the success of the operation.

During the treatment, I had to contend with two difficulties of a very serious character. One, the prevention of the sloughing over the sacrum, induced by pressure, and his emaciated state. For the first four weeks after the operation, it required the most constant attention to prevent the extension of this ulceration, and he often suffered more from the burning and pain at this point, than he did in the wound itself. The other difficulty to which I have alluded, was the formation of an extensive abscess in the groin, which burrowed downwards, until I was fearful effusion into the abdomen would take place. This commenced on the 24th of November, by a slight swelling about an inch external to the femoral artery, which I opened freely as soon as fluctuation was manifest. But the abscess continued to extend internally, and towards the femoral artery, forcing me to divide at different times, the several broad muscles of the abdomen to evacuate its contents, until finally, nothing but the peritoneum itself seemed to interpose between it and the cavity of the abdomen. But this barrier, though slight, remained intact, affording a beautiful illustration of the capacity of the delicate serous membrane to resist the most profuse and protracted suppurative action, for although the part discharged freely and continuously for weeks, it finally granulated and closed.

It will be observed that, from the commencement, I placed the patient upon a most sustaining treatment; that I allowed him animal food and stimulus freely, both before and immediately after the operation, and that it was continued during the entire treatment of the case. He took daily his brown stout and iron, and beefsteak was the principal article of food at his dinner, while the stimulus of smoking, to which he had been so long and so freely habituated, was not withheld from him. Nor was it deemed prudent to discontinue the opiate, which daily use had rendered indispensable. It was given to him freely every night, as sleep without it was impossible, and without sleep he must soon have sunk. As he improved in strength, the quantity of the opiate was gradually diminished, for I find, on reference to my notes, that on the 17th of December, the nightly dose of laudanum was reduced to ℥i, and on the 2d of January, to gtt. 40, and before he left the Infirmary he had entirely dispensed with its use. It is a little strange that, under the large doses of opium he took, the assimilation of his food should have gone on so well, for the integrity of his digestive organs continued, most fortunately for him, unimpaired throughout. His appetite was good, his digestion excellent, and, after the first two or three weeks, the evacuations from his bowels were regulated almost daily by nature.

A few words in regard to the manner of performing the operation.

There is, perhaps, no amputation which counts more methods in its performance than that at the hip-joint. No less than nineteen have been proposed by different surgeons. They may all, however, be classed under the flap, the circular, or the ovalar method. That which I selected was the double flap operation (the anterior and posterior flap), as recommended by Béclard with a slight modification of my own; viz., that of introducing the knife at the inside just above the tuberosity of the ischium, instead of at the outside, below the spinous process of the ilium.

When a surgeon can select his operation at the hip-joint, I think this method is decidedly preferable to any other that has been proposed, for the following reasons:—

First. From the facility and security with which hemorrhage can be commanded. Many surgeons of eminence,* in view of the great danger from this cause, recommend tying the femoral artery before performing the amputation, and thus complicating it by a double operation. Either this must be done, in the lateral flap, the circular, or the oval methods, or else the operator must rely exclusively on compression of the artery, over the pubis, by an assistant. Now in an operation so formidable, so near the trunk, and in which so many large vessels are divided, I think there is some hazard in trusting to compression alone, for a change of position on the part of the assistant, or of the patient, might be fatal to him. But in the antero-postero flap operation, the femoral artery not being divided until the lower edge of the flap is being cut, the artery is caught and securely compressed, *before* it is touched by the knife, by the assistant, who stands ready to raise the flap, and thus there is double security against hemorrhage from the main artery of the limb, or its branches. It will be noticed, that I feared hemorrhage so little from the anterior flap, that I tied the vessels (though comparatively small) in the posterior flap first, originating as they do from the interior of the pelvis, and consequently not being amenable to compression.

Secondly. This operation can be performed with greater celerity than any other mode of amputating the hip-joint.

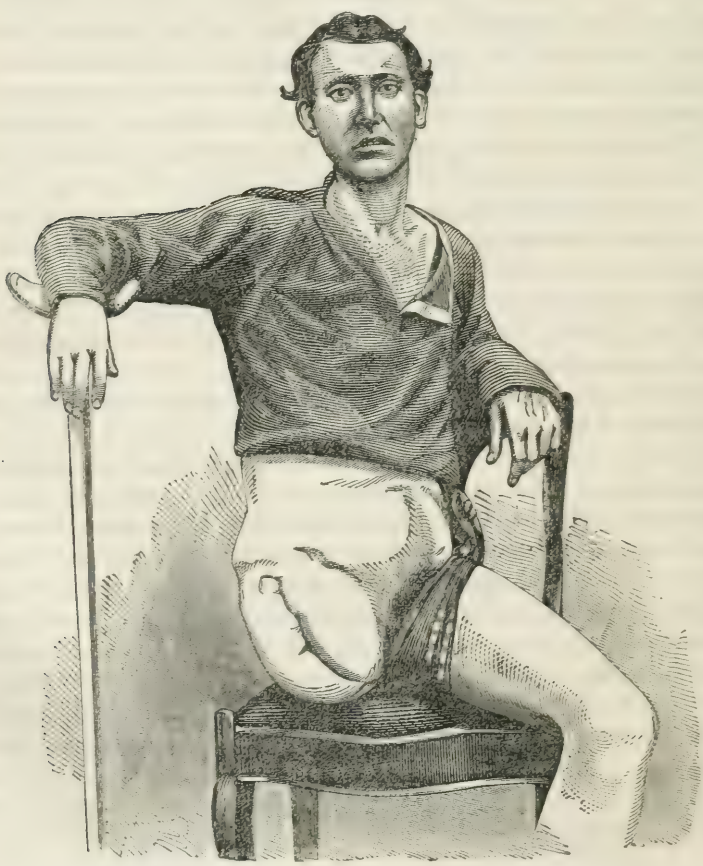
I admit that rapidity in the performance of a surgical operation, as a general rule, is a matter of secondary importance, and in most cases the correctness of the advice of Sir Charles Bell, in his remarks on the operation of lithotomy, must be admitted, "To pay no attention to fools with watches in their hands." But in amputation at the coxo-femoral articulation, celerity *is* of great importance. The extent of surface divided is so great, and the vessels (independent of the femoral) so numerous, that any delay or bungling in the operation might, and probably would, compromise the life of the patient. I have no doubt that it has happened more than once, that he has died on the table from hemorrhage, when the shock to the system has been made to bear the blame.

* Larrey, Delpech, Roux, Blandin, &c.

By Béclard's method the operation may be done in fifteen seconds as easily as in thirty. I have repeatedly performed it on the subject in that time, and but for a slight delay, caused by the malposition of the patient at the moment of disarticulation, the operation in the present case I am sure could have been done in half the time that it occupied.

I find that the mode of operating as I have described it, is usually ascribed to Liston, by English authors. It is true that this great and original surgeon has described the operation in his *Elements of Surgery*, and he twice, according to Mr. Fergusson, performed it on the living, though with an unfortunate result in both cases; but by all French authors the operation is described as Béclard's, and from the examination which I have given to the subject, I think that the credit of it, if credit there be, is due to the French, and not to the English surgeon.

The form of the stump in Eaton's case is as perfect as I could desire. It speaks, however, for itself, from the accompanying cut, executed from a Daguerreotype taken on the 18th of July, 1851.



Case II. *Scrofulous Disease of Knee-joint with Necrosis of the Shaft of the Femur. Amputation near the Trochanter.**—Thompson, aged about 20, entered the Baltimore Infirmary with scrofulous degeneration of the knee-joint far advanced, and which seems also to have extended to the inferior half of the os femoris.

The disease is of long-standing, and the patient in his general appearance exhibits all the marks of a strumous constitution. The knee is very much enlarged, and all motion in it has long since been lost. The swelling also extends to some distance up the thigh, on the lower portion of which, and also about the knee, several fistulous tracts exist, through which a probe can easily be passed in different directions down to the diseased bone. The patient is in a hectic state, and much exhausted and emaciated by night-sweats and occasional diarrhœa.

He suffers great pain in the hip, especially as night comes on, and he says that a surgeon of eminence, who has examined his case, has advised him not to undergo amputation from a belief that the hip-joint itself is diseased. After a minute examination I feel satisfied that the articulation above is not affected, and that the pain felt there is purely sympathetic. There is neither swelling nor tenderness on pressure, however firm it is made, about the joint, and the free motion of the thigh does not augment the pain, and the soft parts in the upper portion of the thigh present a perfectly healthy appearance. I, therefore, advised amputation. But the patient was unwilling to submit to it; in fact he positively refused his consent, being influenced in his decision by the opinion which had been given him of the articulation at the hip being in a diseased state. He remained, however, an inmate of the Infirmary for several months, gradually declining in strength; and finally, the symptoms about the hip not having increased, he expressed a desire to have the limb removed.

This was accordingly done. Believing that the shaft of the femur was to a considerable extent involved in the disease, the first incision was made about the middle of the thigh by the circular method, the artery being compressed by the thumb of an assistant over the pubis. On reaching the shaft of the bone it was found to be very much hypertrophied and rugous, and the incisions, therefore, were extended upwards until a point was reached where the bone presenting a healthy appearance, it was sawn. This was about an inch below the trochanter minor.

The soft parts were dissected from the limb soon after its removal, and a very large and dark-looking sequestrum was found projecting from the shaft of the bone a little below its centre. It was firmly embraced by the new bone which had formed around it, and from which it projected about an inch. The upper portion of the bone where the saw was applied appeared to be in a perfectly healthy condition. The parts concerned in the knee-joint were so blended together and destroyed, that it was difficult to detect any part of its structure; and the muscles for some distance above it were pale and flabby, and the cellular tissue filled with serum.

The patient did not lose in the operation more than the average quantity of blood in amputation of the thigh, but he bore it badly. His pulse became very rapid and feeble and continued so for several hours afterwards. In fact there seemed to be great danger that he might not survive the immediate shock of the operation. The following are the minutes of his case for some days subsequently.

* This case came under my care while I was one of the Surgeons to the Baltimore Infirmary.

Wednesday, 1 P. M., soon after the operation. Pulse 140, feeble, and very much depressed in his looks. *Evening.*—Pulse 135. Restless, and great pain in the stump; countenance still depressed and anxious. Ordered acetat. morph. gr. ¼ every hour until rest is produced.

Thursday.—Slept very little during the night. Pulse, however, not quite so rapid. Slight diaphoresis. Tongue moist and clean. Slight spasms in stump, and some pain in back. Fullness about abdomen. Ordered sulph. sodæ ℥ss, and repeat the dose if it does not move the bowels during the day. Barley water and chicken broth for nourishment. *Evening.*—Pulse 120. Considerable pain in stump, and great restlessness. Ordered acetat. morph. gr. ¼, and to be repeated every hour until composed.

Friday.—Has had several hours sleep during the night, and a small evacuation from the bowels. Pulse 102. Tongue moist and clean, and gentle diaphoresis. Has still much pain in the back and stump, and some pain over abdomen, which is tender on pressure. Ordered an enema of castor oil ℥j, and flaxseed tea Oss; and to be repeated if not effectual. May take barley water, chicken broth, and toast. *Evening.*—Has had a free passage from the bowels, and feels a little better. Has slept some through the day. Pulse 106. If restless and in pain to take acetat. morph. p. r. n.

Saturday.—Slept some during the night, and is more free from pain. Tongue clean and moist, and pulse 100. Continue same nourishment. *Evening.*—Suffers still less pain in stump and back, but skin hot and dry. No inclination to sleep. Pulse 108. Ordered Pulv. Doveri gr. v., and to be repeated p. r. n.

Sunday.—Rested by dozing through the night. Tongue still looks well, and pulse 106, with gentle diaphoresis. *Evening.*—More tranquil; though pulse 112. Having had no evacuation since Friday, ordered sulph. sodæ ℥i to be taken early in the morning. If restless and in much pain, black drop gtt. xij.

Monday.—Has slept tolerably well through night. More tranquil and more free from pain. Tongue slightly furred in centre, but moist. Pulse 108, and soft. Continue same diet, and ordered an enema, the purgative not having had the desired effect. *Evening.*—Has had two dejections. Slight diaphoresis. Pulse 110, 112.

Tuesday.—Has slept well. Tongue and skin moist, and pulse 98. Wound has united throughout, except a small opening at inferior angle, where the ligatures pass out, and from which a healthy, though slight, discharge of pus takes place.

The patient's condition daily improved after the first week, the minutes of which are here given. And he recovered entirely, and left the Infirmary in about seven weeks well, and having become quite stout before his departure. I attended him for an attack of gonorrhœa soon after his return home.

I have given a report of this case, as possessing, I think, some interest, from a combination of the two diseases in the same bone, viz., extensive necrosis of the shaft with articular caries, and destruction of the joint; both evidently the result of a strumous habit. On account also of the amputation itself, which was performed high up, the bone being divided near the trochanter minor; but more especially as fairly illustrating, when compared with Case I, the great importance of preventing by an anæsthetic agent, the shock of a severe surgical operation upon a debilitated frame.

In Case I, the patient was thoroughly etherized, and it is a remarkable

fact that the pulse, which was counted accurately a short time after the amputation, and after the effects of the ether had subsided, was precisely the same in frequency as it was a few hours before the operation took place; in both instances being 102. The man's system had, in fact, been subjected to no shock, and his condition and appearance did not indicate that he had undergone the most severe of all surgical operations. I have no hesitation in attributing, in a great measure, the success in this case to that greatest discovery and blessing of modern surgery, etherization; for I do not believe the patient could, in his prostrated state, have sustained the shock that would have occurred from amputation at the hip-joint; the removal (in his case) of more than one fourth of the system.

In Case II, no anæsthetic agent was used, as this discovery had not been made at the time the amputation was performed; and although the patient was a younger man and less enfeebled by disease, and the operation itself less formidable, yet its immediate effects were such, from the severe shock to the system, as to excite the strongest apprehension of an early and fatal issue, which, fortunately, however, was not realized.

Case III.—*Compound Fracture of the Leg.—Tetanus.—Amputation of the Thigh.*—C. Fitzgerald, aged 20, was brought to the Infirmary on Saturday evening, December 31, 1850.—On Thursday the 29th, at about 2 o'clock, P. M., he fell from a scaffold, and in the fall was struck on the leg by a heavy piece of timber, which produced a very bad compound fracture of both bones of the leg. A lacerated and gaping wound extends from the tubercle of the tibia six inches downwards, exposing the bone in the greater part of its extent, with great contusion of the soft parts.

The tibia is comminuted, and, at the time of the accident, the upper fragment projecting from the wound, about an inch of it was removed by a physician in the country, in order to effect reduction. A considerable piece of the bone was also picked up from the ground where he fell. When brought to the Infirmary he was suffering extremely, having been conveyed thirty miles from the country on a litter.

His friends were informed that there was no prospect of saving the limb, but that he was then in no condition to undergo amputation. He was at once placed under the influence of chloric ether, and thus without pain removed from the litter to his bed, and the limb rendered as comfortable as possible by splints loosely applied, a light poultice and the swinging apparatus. Pulse 112, 114; jerking and full. Ordered an opiate every hour and a half until composed.

January 1st. Morning.—Has passed a tolerably good night. Pulse more calm, 100. Ordered sulph. magnesia ℥ss, and cold water dressing to limb. Light broth for nourishment. *Evening.*—Pulse 100, full and jerking. Bowels have been opened, but skin hot and dry, and restless. Ordered ℞. Liq. acetat. ammon. ℥ij; spt. æther nitros. ℥i; sol. citrat. morph. ℥i. M. Three teaspoonsful every two hours till composed. Lemonade for drink.

2d. Morning.—Passed a comfortable night, and countenance looks better. Pulse 88, soft, and skin moist. Continue chicken water and tea and toast for nourishment. *Evening.*—Pulse 94, 96, and more febrile. Ordered same mixture as was prescribed last evening, to be taken every two hours till composed.

3d. Morning.—Has passed a good night, sleeping well, and feels much better. Pulse 90. Ordered sulph. magnesia ℥ss, and continue same diet. *Evening.*—Has had no operation from the purgative. Pulse 100. Ordered an enema to be given early in the morning, if the bowels are not opened by that time. Composing draught to be given and repeated, if it does not produce sleep.

4th.—Slept well, and has had a good evacuation from the bowels. Pulse 84.

5th.—Passed again a good night, and wound discharging freely. Pulse 75. Has had a natural stool. Being restless toward evening, ordered composing draught.

6th.—Feels quite comfortable, and pulse 75.

7th.—Has passed another good night, sleeping well. Pulse 76.

I had decided on removing the limb to-day, but the morning being very tempestuous, I concluded to defer the operation until the morrow. On asking, however, to look at his tongue, I found that he did not protrude it as well as usual, and on requesting him to do so, he said he could not open his mouth so well. I questioned him particularly, to ascertain when he had *first* discovered this difficulty. He is very positive that he first observed it at breakfast this morning; say about three hours prior to my visit. There is no pain or tenderness about the epigastrium, and no muscular rigidity anywhere, except that alluded to. There is some soreness about the condyles of jaw, when he attempts to open the mouth.

I decided on immediate amputation, as it was a fair case to test its effect in a case of threatened tetanus, from the short time that the symptoms indicating it had become manifest. But at the same time, my entire disbelief of its efficacy in arresting this disease, was fully stated to the class.

The patient was thoroughly etherized, and the thigh then removed at its lower third by the lateral flap operation. Though placed completely under the influence of chloric ether, and totally insensible to pain, it was yet observed that there was not the least relaxation of the jaw during, or after the operation. The patient was removed to his bed from the amphitheatre, in a state of complete anæsthesia, in which condition he continued for fifteen minutes, or more, after his removal. On awakening, he said he was entirely unconscious that the limb had been amputated, but he now complains of great pain in the leg. The stump was not permanently dressed for a couple of hours, being simply closed and covered by a wet towel. No hemorrhage having occurred from it in this interval, it was brought together by one suture and adhesive plaster, and the water dressing applied to it. About eight ounces of blood were lost in the operation.

The difficulty of swallowing, and of opening the mouth, increased rapidly after the amputation, and the pain in the leg also grew more severe, and I have never seen a case of tetanus so rapidly and violently developed as was this. He was again etherized, and tinct. opii given to him in large doses, and in succession, all the most active remedies, including the tobacco enema, and the cannabis indica, were resorted to. Great pain and rigidity about the epigastrium soon took place, with violent spasmodic action of the voluntary muscles, which quickly resulted in complete opisthotonos. At nine o'clock in the evening, he could not swallow anything, and the spasms occurred every half hour, with horrible distortion of the features, and profuse perspiration. In the morning, the spasms had increased in frequency to every ten minutes, and the body was completely bowed backwards by them. Nothing seemed to give him the least relief, and he died at 11 A. M., terribly convulsed, but with his mind clear to the last moment, only twenty-four hours after the amputation of the limb.

Few surgeons, I presume, have much confidence in amputation, as a means of arresting acute and traumatic tetanus, as the results in such cases have been generally unsuccessful; and yet, I felt justified in the above case in resorting to it, for amputation of the limb had already been decided upon before any symptom of tetanus had occured, and the disease being in its incipient stage, it afforded me an opportunity of fairly testing a measure, which has been tried and sanctioned by high authority, both in military and civil surgery. So far from mitigating the disease, it seemed to hurry it on with frightful rapidity to a fatal termination; for, as I have remarked, before the operation the symptoms were very slight and incipent, whilst after it, they were in a few hours at their acme, and so intense as to produce death in an unusually short time.

In regard to the influence of anæsthetic agents over this disease, I believe their effect to be only transient and mitigating.

I had already, before the occurrence of the present case, fairly tried chloroform in acute tetanus, but with no other effect than a mere temporary suspension of the spasm, its return invariably taking place as the anæsthetic influence subsided; and I am inclined to believe that those cases of tetanus which have been occasionally noticed, as having been successfully treated by chloroform or ether, belong to the chronic or idiopathic form, which, we know, not unfrequently terminate happily, when only the ordinary remedial measures are used.

I could make no autopsy of the case, as the friends removed the body to Baltimore for interment.

Case IV. *Idiopathic Mortification.—Amputation of the Legs.*—T. Ingraham, coloured, aged 34, waterman, entered the Washington Infirmary on the 1st of December, 1849, with both feet in a state of mortification. From the natural stupidity of the man, it is difficult to ascertain much of the preceding history of his case. He states, however, that he was attacked with cholera in the latter part of the summer (the month of August), which left him in a very weak condition. That in the latter part of September he first noticed small discoloured spots on the toes, which gradually enlarged until both feet became almost entirely covered with them. He admits that he has been a regular drinker; in fact, from his own account, I think he has been decidedly intemperate in his habits. Before he was brought to the Infirmary he was living in a low hovel, deprived of the common comforts and necessaries of life. The disease has extended equally in each foot, that is, to about an inch from the malleoli, where its progress has been arrested, and where the sulcus of demarcation between the dead and living parts is distinct and well marked. The sloughing is uniform, every portion of the feet below the line of elimination being in a state of complete sphacelus. The mortification is of the humid form, and the discharge is free. There is great pain in the extremities; his pulse is rapid and feeble, 120 to 125 in the minute; and the tongue is coated with a brownish fur. From the free and long-continued discharge and want of rest, he is much exhausted, and evidently not in a favourable condition to undergo amputation.

He was at once ordered a nutritious diet (beef soup) to be taken freely, and

one of the following powders every four hours in two tablespoonfuls of brandy: ℞. Ammon. carb., quiniæ sulphat., g. camph. āā grs. ij. M. An opiate at night to ease the pain and give him sleep. To the feet flaxseed poultices. Under this treatment his condition improved in a short time; the pulse becoming stronger and less frequent, and his rest at night less disturbed. On the 4th of December I removed the left leg a little below the point of election. He was thoroughly etherized for the operation, and in order that he might lose as little blood as possible, which he could but poorly afford to spare, the artery was compressed by a tourniquet applied in the popliteal space.

The limb was amputated by the double flap method, the principal flap being cut from the posterior part of the leg, and a small one in front.

The patient was unaffected by the operation, being anxious to know which limb had been removed, when recovering from the anæsthetic state.

I deemed it most prudent to defer the amputation of the other leg for a few days. It was, therefore, postponed until the 11th, seven days after the first operation. It was then removed at exactly the same point and with the same precaution as the first. The patient's condition improved rapidly after the amputations, and both the stumps were healed by the 8th of January, 1850. During the after treatment, the brandy and powders given when he first entered the Infirmary were taken by him regularly three times a day. He left the Institution on the 23d of February well and able to move upon the stumps, which have since remained perfectly sound, and enable him at present to go about with considerable facility.

An examination of the parts was made by my request soon after they were removed; at which, however, I was unable to be present, and the gentleman who made the examination then attached to the Infirmary, soon afterwards left Washington for a distant residence. Unfortunately, not having received from him, before his departure, notes of the state in which the arteries were found, I am unwilling to trust to my recollection the verbal statement which was made to me.

But there is no doubt the mortification was produced by a depressed and vitiated condition of the vascular and nervous activity in the limbs, inducing inflammation of a low type.

The man was intemperate in his habits, and had been very much prostrated by a severe disease; add to this improper and insufficient nourishment, and a deprivation of the ordinary comforts and necessaries of life, and we have all the elements requisite to vitiate the blood, and to induce in the vessels through which it circulates inflammation of a low grade, *inflammatio debilis*, as it has very properly been called; which, by obstructing the passage of the blood through the more remote and naturally weakest points of the system, would easily account for their death.

Under such circumstances it was to me a matter of some surprise, that the healing of the stumps progressed so well; for in a little over a month they had entirely healed, with the exception of a very small point on one of them, which in a short time afterwards firmly cicatrized.

No doubt the nutritious and tonic treatment upon which he was at once placed on entering the Infirmary, with a return to the stimulus to which he

had been so long habituated, aided materially in producing this result; and it will be recollected that this treatment was continued until entire cicatrization had taken place. The disease was already arrested by nature when he entered the Infirmary, and the work of elimination, as I have stated, had commenced, but in all probability before it could have been half completed, the patient must have sunk from the constitutional irritation attendant on it.

Case V. *Traumatic Mortification.—Amputation at the Shoulder-joint.*—On the 29th of December I was called on to visit W. B., who had been very severely wounded on the day previous, between twelve and one o'clock, by a fowling piece loaded with a heavy charge of duck shot. The muzzle of the piece was very close to the man at the time it was fired, and the entire load entered about the middle of the left forearm, lacerating the muscles in a shocking manner, exposing both the radius and ulna, and making a wound three inches or more in diameter. It then passed up, entered the inner side of the arm, dividing, as I judged, the brachial artery and large nerves accompanying it, to within two inches of the edge of the axilla, and causing another wound, of at least four inches in length.

The patient was not seen by me until twenty-four hours after the receipt of the injury, as he had been brought forty miles from the country, and he had lost, I was told, a great deal of blood. The hemorrhage had, however, ceased spontaneously, as occasionally happens in gunshot wounds, even where a considerable artery is severed.*

The expression of his countenance was very pale and the features pinched, and he was very restless, with a feeble and rapid pulse, 125 to the minute. The forearm was cold, pulseless and livid in colour, and the arm was also discoloured, its temperature less than on the opposite side, and much swollen. In fact there was no possibility of getting a flap from any part of the arm that was not already doomed by gangrene, rapidly spreading and intense in its action, except about the deltoid region, and amputation at the shoulder-joint I was at once satisfied was *promptly* demanded.

Upon this opinion being communicated to the patient and his friends, a consultation was asked for, which was of course acceded to.

Doubts being expressed by one of my friends who was called in consultation, of the propriety of immediate amputation, the patient positively refused to submit to it; and I left him, satisfied that any delay (even of a few hours) would be fatal to him.

On the next morning (the 30th) I received a summons from the patient in haste. I then found him not only willing but most anxious to have the operation performed, for he said that he felt convinced that unless the limb was removed he must die, and he begged me to amputate it as soon as possible. The forearm had now become much darker in hue and was very cold, and the coldness and discoloration of the arm had also much increased since my visit

* "If the artery be completely divided, a considerable quantity of blood is quickly lost, and the patient may also die. But, in general, syncope or a state nearly allied to it supervenes, and the hemorrhage ceases spontaneously. The same thing occurs where a limb is carried away by a cannon shot, and proves the safeguard of the patient's life; for serious and destructive bleeding has ceased, in most cases, before a tourniquet can be applied; and, indeed, in the greater number of cases they are of no use whatever, for after the hemorrhage has been spontaneously suppressed, it does not in general return; and whenever it does return, the patient's life will certainly be lost, unless proper and effective assistance be at hand."—*Guthrie on Gunshot Wounds, from Chelius, by South*, vol i. p. 372.

the day before. When pressed there was a crackling sensation felt under the finger, and the discoloration and numbness had partially extended to the deltoid region. In fact I feared that gangrene had already invaded the only point from which I thought I could obtain a proper flap at my last visit. The pulse was still 125, and the poor fellow had passed a sleepless night in great suffering. I stated to the patient's friends my belief that the time had passed for amputation, but as he still continued most urgent to have it done, I decided on giving him the benefit of the slender chance that remained.

He was accordingly raised in a chair to a proper position, but he immediately fainted. He was at once placed in a recumbent position again, and brandy and water given to him freely. Having rallied in the course of an hour, he was again raised and held firmly in a chair, and the limb was then removed at the shoulder-joint by Lisfranc's method, as follows: The arm being raised to nearly a right angle with the body, a catlin of medium size was introduced from behind under the edge of the latissimus dorsi muscle (just where it forms the posterior boundary of the axilla), and its point pushed out between the acromion and coracoid processes of the scapula, and a flap about five inches long was then cut downwards and outwards. This being then drawn well upwards by an assistant, the arm was now depressed towards the side, and the knife was carried lightly across the capsular ligament, when the head of the bone starting from the glenoid cavity, the knife was passed behind it, and a flap cut from the inner side corresponding in length to the outer one. In cutting the last flap the edge of the knife was kept close to the bone, so that the brachial artery was not touched until just as the flap was terminated. This enabled the assistant who retracted the first flap (Prof. Johnston) to catch the artery, by passing the hand back of the knife *before* it was divided, as in the amputation at the hip. The hemorrhage was thus securely commanded, and very little blood was lost.

I have mentioned in detail this operation of Lisfranc's for amputating the shoulder-joint, as being, I think, far preferable, both in its performance and its results, to any other method that has been proposed. It may be truly said to be instantaneous, so rapidly can it be executed, and the manner of commanding hemorrhage is so certain that previous compression of the artery above is entirely unnecessary, provided the surgeon can rely on his assistant.

It was observed that there was no contraction of the muscles as they were divided, and that a small quantity of pus oozed from the edge of the external or deltoid flap. The operation was performed about fifty hours after the patient was wounded. He seemed to be much more comfortable after it was over, and said he felt much relieved. At 6 P. M. his pulse had fallen to 106, and he was calmer and in better spirits. An opiate was ordered for him.

On the next morning he appeared to be still better, having passed a quiet night, and his pulse and skin being in a better condition, I felt somewhat encouraged in his case. I did not examine the stump until the third day after the operation, and I then found that my fears for its condition were very soon to be realized. There was no appearance of adhesion in any part of it, and the edges were swollen, puffy, and livid, and the patient evinced very little feeling when it was handled and examined. It was evident that gangrene had attacked it. The discoloration extended rapidly towards the trunk, and the entire flap was soon involved. The man gradually sunk under its ex-

tension, and died on the fifth day after the operation, about sundown, leaving me strongly impressed with the belief that amputation twenty-six hours sooner, and when first proposed by me, would probably have arrested the disease and have saved his life.

The case is a convincing proof of the danger of delay in traumatic gangrene when it is approaching the trunk. Unlike the spontaneous form, its march is too rapid for hesitation. The postponement of action, even for a few hours, may be fatal. I believe it to have been in the present instance. If the surgeon desires time to decide, that time, though brief it be, may decide the fate of his patient.

It will be remarked that in three of the above cases anæsthesia was resorted to, while in the other two it was not. This agent not having been introduced when the two operations referred to were performed, will account for this; for, from the experience which I have had with etherization in surgical practice, I can truly say I would as soon think of amputating the thigh without previously compressing the main artery of the limb, as to perform a difficult or dangerous operation without previously putting the patient in an anæsthetic state. Nay, I am prepared to say further, that so important an element is it to the success of the surgeon, that he ought to decline any operation of magnitude and danger, should he meet with a refusal on the part of his patient to be subjected to its influence.

Fortunately there are few who are not only willing but anxious to be soothed by the magic spell which to the victim robs surgery of nearly all its terrors, and to the surgeon brings pleasure from the knowledge that he inflicts no pain.

Since November, 1848, no other agent for inducing anæsthesia has been used by me but chloric ether, and I want none better. My acquaintance with sulphuric ether and chloroform, when they were first introduced, was by no means satisfactory, owing to my not using either of them with that freedom requisite to produce their effect; and I, therefore, abandoned the subject of anæsthesia entirely. But at the period just mentioned, on my return from a visit to Boston, I was induced to use chloric ether from a conversation upon its merits which I had while there with Drs. J. M. Warren and Hayward, and its qualities for certainty and safety as an anæsthetic agent, as stated to me at that time, by those gentlemen, have since been fully realized by me.

For nearly three years it has been constantly used by me, and most liberally whenever demanded, both in hospital and in private practice, and it has never in a single instance disappointed me.

I have given it at all ages, from the tender infant to the old and infirm man, and from a few moments to more than an hour at a time, and it has in my hands never failed to produce the desired effect, nor been followed by any unpleasant result.*

* The ether which I have used has always been prepared by Wm. B. Little & Co., Boston.

I could not close these remarks upon operations, in which it has borne "so conspicuous a part," without rendering my feeble tribute in praise of the greatest boon that has ever been conferred upon suffering man in the annals of surgery.

Washington, *July 18th*, 1851.

Art. III.—*On a rarely observed, but very fatal Effect of Gastro-intestinal Revellents; especially of the Tartrate of Antimony and Potassa, and particularly in the treatment of Pneumonia.*—By Wm. M. Boling, M. D., of Montgomery, Alabama.

There are but few articles of the Materia Medica which exercise so certain a control over any serious morbid state or action, as the tartrate of antimony and potassa does, over inflammation of the pulmonary parenchyma. Its efficiency, I may say, is universally admitted. Unfortunately, however, its value as a remedy in pneumonia, or any other disease indeed in which its protracted use may be required, is diminished by the circumstance of its occasioning in many instances, violent disease of some of the abdominal viscera, which often leads to a fatal result. It is in pneumonia, however, according to my own observation, that the effect referred to is most frequently produced by it, and developed in the most violent and rapid manner; probably, it is but reasonable to suppose, because in this disease its protracted administration is more frequently practiced than in any other. As generally administered, it is not improbable, that the remedy, even in cases in which the ultimate result may be favourable, produces by its contact, more or less irritation of the gastro-intestinal mucous membrane, which gradually subsides, after its suspension, during convalescence. Its visible effect upon the skin, when used locally, might lead to such an inference, and indeed appearances somewhat analogous to this are sometimes observable, not only after death, in the gastro-intestinal mucous membrane, but during life, in the mouth and fauces, as a result seemingly of its use. In fact it is to a revellent effect, resulting from this local irritant action, that its efficacy in pneumonia and other diseases, is attributed by the advocates of the physiological doctrine. It is not, however, this local action, *merely as spoken of and described by the generality of writers*, to which it is my object to call attention at present, but more particularly to an array of symptoms of a much more violent and sudden character, connected seemingly with a metastasis of morbid action, from the thoracic (when administered in the diseases of this cavity), to the abdominal viscera; the result, it may be, of an exaggerated influence of the character mentioned.

Whatever the correct explanation, however, as to the mode in which the effect is produced, the condition itself is one of extreme danger.

There is reason to believe, however, that though in the treatment of pneumonia, the state in question is more frequently induced by the use of tartar emetic, than by anything else, a similar condition is occasionally brought about by other agents administered to such an extent as to produce a high degree of irritation of the gastro-intestinal mucous membrane; and I believe that it is with more certainty developed, under a combination in the treatment, of calomel with the antimonial, than by the latter alone.

Supposing the remedy to have been continued several days, the phenomena referred to, are developed much in the following manner. The patient may seemingly be doing well under the continued use of the remedy; the dulness on percussion, and the frequency of the pulse diminishing; the skin perhaps becoming moist, and the respiration improving. Suddenly in some cases, in others somewhat gradually, the patient becomes restless, the thirst is augmented, the discharges from the bowels are more numerous and thin, the abdomen becomes tympanitic and perhaps tender, the tolerance is lost, and though he may not have done so for several days, he vomits, or makes frequent efforts to do so; the tongue becomes dry and pointed; there is jactitation present, anxiety of countenance, delirium, and perhaps stupor a short time before death. Occasionally jaundice supervenes, and in a few cases the matter vomited bears a close resemblance to that ejected in yellow fever. During the progress of the change, the pulse becomes more frequent, hard, concentrated, small and thready.

The rapidity with which the symptoms mentioned are developed varies a good deal in different cases. I have known instances in which death has taken place in about six hours from the time of the first evident unfavourable change; in every respect, up to that time, the progress of the case being apparently favourable, and the graver symptoms subdued. Oftener the case is protracted to ten or twelve hours, and sometimes to a longer period.

Simultaneously with the changes above spoken of, or, as it were, preceding them rather, a more or less rapid disappearance of the signs and symptoms of the primary disease takes place. From a state of almost complete solidification of an entire lung, with dulness on percussion, and bronchial respiration; in the course of four or five hours, I have found the pulmonary tissue permeable, and the chest resonant and yielding a healthy respiratory murmur; a corresponding improvement in the cough, thoracic pain, difficulty of breathing, &c., proceeding at an equal rate. The rapidity with which this change in the condition of the lung takes place is proportionate to the violence and rapidity of the newly developed abdominal disease.

In any case of pneumonia under the antimonial treatment, although the patient may seemingly have been doing well, the supervention of the slightest tympanitis, with augmented thirst and a tendency to diarrhœa, may be regarded with suspicion, as the probable precursors of a very grave condition;

and I am now led to regard my patient's doom as almost settled, when, in addition to these symptoms, there is a *rapid* instead of a gradual removal of the dulness on percussion, *unattended with the crepitant rale of resolution.* Where a case is closely watched, the latter will be found to precede somewhat the former symptoms of the progressing change; and I have more than once surprised, not only the relatives of patients, but professional gentlemen in attendance with me, by announcing a coming change for the worse, basing my opinion on the physical sign just stated, where everything otherwise seemed favourable; the patient comfortable, and apparently, perhaps, convalescent.

This termination of pneumonia, under the administration of antimonials, especially when given in what would be considered anything like adequate doses by the advocates of the doctrines of Rasori, I am led to believe cannot be of very rare occurrence in the south; for I think that I have seen almost as many patients die of the superinduced or substituted affection as of the primary. And yet the largest quantity for the twenty-four hours, in which I have been in the habit of prescribing the tartrate of antimony and potassa, falls far short of what would be considered a medium dose for the same time, by the generality of physicians of the contrastimulant school. Under the supposition, however, that it not unfrequently occurs, it is somewhat strange that we find so little in the works of authors who have written on pneumonia, especially as treated with antimony according to the contrastimulant doctrine, in which anything like a distinct reference is made to it, much less an accurate account of the condition. Neither in the French nor Italian writers of the contrastimulant school accessible to me have I been able to find any account of it, though in many we find allusion to the mere local irritant action of the agent in question upon the gastro-intestinal mucous membrane. This is more especially, however, the case among the advocates of the physiological doctrine, by whom the curative influence of the remedy in question, in pneumonia, is ascribed to a revellent operation. The condition spoken of by the followers of Rasori as a loss of the tolerance, resembles it in many respects, and I have sometimes suspected that in their descriptions they may have had in view a state identical with that to which I now have reference. If so, however, their delineation is incomplete in several important particulars; and I would especially mention the sudden subsidence of the original disease, with the occurrence of the new train of alarming symptoms. Moreover, no one, I imagine, who has ever observed a well-marked case of the state to which I have reference, even under the influence of a favourite doctrine, could see in it *merely* a general depression of the vital powers somewhat below the standard of health; and, in short, could suppose that the phenomena manifested were not the consequences of actual local lesion of the viscera of the abdomen.

I have been disappointed in not finding an account of it in such of the writings as I have met with, of the Italian followers of Rasori; because, not only from the immense doses in which they are in the habit of administering

the antimonial preparations, but from the similarity of their climate, and diseases generally to our own, in their hands especially, I had been led to suppose it must frequently occur. Owing to the fact, that in the north, the susceptibility of the gastro-intestinal mucous membrane to irritant impressions is less than in the south, it probably occurs less frequently there than with us. One rather mild, but unquestionable case, I find recorded in the *American Journal of Medical Sciences* for April, 1848, by J. F. Peebles, M. D. of Petersburgh, Virginia, in a paper calling attention to certain unfavourable effects of tartar emetic. Two other cases are given by B. R. Jones, M. D. of Montgomery, Alabama, in the *New Orleans Medical and Surgical Journal* for September, 1850; in which he particularly refers to it as a result of the operation of antimony.

My own attention, several years ago, was forcibly drawn to this unfavourable action of the tartrate of antimony and potassa, in pneumonia especially, and it was alluded to in a paper on "the treatment of the inflammatory affections of malarious districts," which I published in the *American Journal of Medical Sciences* for July, 1844. Two cases are there given, among others of a different character; and, in regard to one of them, the following remark is made. "In this case, an occurrence took place, which is by no means unusual with us here, in the treatment of acute thoracic diseases, particularly when tartar emetic or calomel is used to any considerable extent, and more especially when they are used in combination; viz., the supervention of gastro-enteritis about the time, or *soon after a considerable amendment has taken place in the original disease.*"

But, though I have been able to find nothing, or but little, that can be regarded as having allusion to the accident in question, where most I expected to find accounts of it, viz., among authors of the school of Rasori, in speaking of the use of tartar emetic in pneumonia, a graphic description of a similar state produced by the continued administration of calomel may be found in the work of Golis on hydrocephalus. "Many times," he says, "I saw, under these large and long-continued doses of calomel, the hydrocephalic symptoms *suddenly* disappear, and inflammation of the intestines arise, which terminated in death. Still oftener, I have observed this unfavourable accident, from an incautious use of calomel in croup; viz., where all the frightful symptoms of this tracheal inflammation, which threatened suffocation, would *vanish suddenly*, and enteritis develop itself, which passed rapidly into gangrene and destroyed the patient."*

Although it is probable, that it is through a local irritant action of the antimonial upon the gastro-intestinal mucous membrane, that the effect in question is brought about; the manner, and circumstances of its development lead not unreasonably to the inference, that a real metastasis takes place; that in addition to that irritation, which the remedy, probably, in almost every in-

* Davis on Acute Hydrocephalus.

stance produces, where it is long used; that, for instance, which it would produce in a healthy subject; there is a superadded morbid action, transferred upon the abdominal viscera, in lieu of the pneumonia, which has suddenly disappeared. It will be remembered, that, generally, it is not till after a partial subsidence of the pneumonic symptoms, that evidences of the gastro-intestinal irritation are manifested. It partakes, then, more of the character of metastasis than revulsion, though an irritant action may have determined it.

Why the morbid action, from which the patient was, probably, to all appearance in no great danger, in the lungs, should prove so frequently fatal when transferred to the abdominal viscera, is a question which naturally suggests itself. Perhaps it may be the suddenness of the invasion. Perhaps the translated morbid action, operating in conjunction with a morbid state, which had already been developed in a high degree in the gastro-intestinal mucous membrane by the remedy, but which, up to the moment of the metastasis, had remained latent, in consequence of the preponderance of the pneumonic inflammation. Perhaps, a greater depression of the vital powers results from an equal degree of morbid action in the gastro-intestinal mucous membrane, than in the pulmonary parenchyma.

Notwithstanding this occasional unfavourable influence of the tartrate of antimony and potassa, I have felt reluctant to dispense with its use entirely in the treatment of pneumonia, in which, otherwise, its efficacy is so great; and, for some time, it has been an object with me to devise some plan of administration, by which, while its favourable operation might be secured, the former effect might be entirely, or in a great measure avoided.

Without entering into any detail or discussion of the various and somewhat contradictory views entertained by different physicians, or sects of physicians, as to the modus operandi of the tartrate of antimony and potassa, I think it may at present be safely assumed that, while its sedative or contrastimulant influence is exerted, after its absorption and commixture with the circulating mass, the unfavourable effects resulting from its administration, to which reference is here made, are consequences of its direct local action upon the gastro-intestinal mucous membrane. To be sure, according to experiments of Magendie, it would appear that its *emetic* operation is secondary to its absorption, and the result of a special affinity for, or action upon, the stomach, while in its transit through the vascular circle; but it would seem a visionary refinement in toxicology, to refer the effects of which I have been speaking to an influence thus exerted, aware, as we already are, of its irritant action upon the mucous and dermoid tissues, when locally applied.

It is not at all improbable, however, that in some rare cases, the revulsive operation of the remedy on the gastro-intestinal mucous membrane may prove favourable, according to the views of Broussais; but, knowing as we do, that other gastro-intestinal revellents exercise no such special control over the phlegmasiæ of the thoracic viscera, as the agent in question, as a general rule, his explanation of its modus operandi will, I am inclined to believe, be deemed

incorrect. On the contrary, when the local effect on the gastro-intestinal mucous membrane is developed in any considerable degree, recovery, even when it follows, is retarded rather than advanced by the circumstance; not only by the additional febrile disturbance, but by the diminished absorption which results in consequence; and that when it occurs in a high degree, it occasions in pneumonia the train of alarming, and so often fatal phenomena.

Assuming then that the sedative effect of the remedy through which its curative influence in pneumonia is brought about, is produced by that which is absorbed; and the deleterious effects under consideration, by that which, remaining unabsorbed, or which is not for a considerable time absorbed—remains long applied in contact with the gastro-intestinal mucous membrane—by what indeed may very properly be deemed a redundancy of the article—that over and above what can be readily acted on by the absorbents, it is manifest that to secure the former and avoid the latter, no more of it should be prescribed than it is probable will be promptly taken up by these vessels, and its administration regulated in such a manner as best to secure this end.

With this object in view, I at first commenced to diminish the dose, although in no case had I ever given it in anything like the quantity recommended by many physicians of the contrastimulant school; nor did I find the efficacy of the remedy less when I had fallen back upon about the quantity advised by many before the rise of the contrastimulant doctrine: say three, four, or at most six grains in the twenty-four hours, than when I gave it in doses twice or thrice as large; but its mischievous effects were infinitely less. It does not necessarily follow because in many cases the larger doses of the ultra contrastimulists are tolerated for the time, and generally without any manifest ulterior mischievous effects, that they are really required.

Besides this reduction of the dose, say for the twenty-four hours, to the smallest possible quantity capable of producing a sedative influence, I have also adopted the plan of giving it in small portions, frequently repeated, so that not more will be swallowed at a time than may be promptly, at once indeed, acted on by the absorbents, rather than in larger portions at longer intervals, by which the mucous membrane would be of necessity subjected to a longer contact with a part of each portion swallowed. The method has seemed to me a bad one, of giving the quantity intended for the twenty-four hours at lengthened, though equally divided intervals throughout this period; but still worse the plan followed by Laennec, in some cases, of giving the entire quantity intended for the twenty-four hours, in but three or four portions, at short intervals, and then omitting it for the remainder of the day. By this method the local or revellent influence of the remedy is induced in the highest possible degree, while the sedative influence is obtained in a degree, perhaps, proportionably lessened. Generally, I give from three to six grains, according to the extent of the inflammation and the grade of febrile excitement present, in the twenty-fours, dissolved in six ounces of water. Of this solution, I give, during the day, a teaspoonful every half hour; but, if the

patient is disposed to sleep, that his rest may not be too much disturbed, twice the quantity every hour during the night. I have not found, as we are led to believe would be the case by some of the followers of Rasori, that the tolerance of these smaller doses is less readily established than of the larger. In some cases, where the attack is violent, in connection with blood-letting and other appropriate measures, with the view of bringing the system as speedily as possible to some extent under the influence of the agent, I venture to give at first one or two doses, say of a third or half a grain each, of it. To favour its rapid absorption, by all means the remedy should be administered in perfect solution, in water alone; and the plan of administering it in combination with mucilage, as of acacia, flaxseed, elm, &c., is eminently calculated to lead to the result it is intended to obviate. Instead of sheathing the gastro-intestinal mucous membrane, or at least of protecting it in this way against the local irritant action of the remedy, such substances favour the latter effect, by retaining the salt for a long time in contact with the mucous surface, in consequence of the obstruction to its ready imbibition, which they present. That absorption should take place, it is manifest that contact is necessary; consequently, nothing can be gained by placing either the absorbing surface, or the remedy to be absorbed in such a condition as to protract the process. Neither do I think the plan is a good one, of giving such fluids in the intervals; though from the universality of the practice, popular prejudice is so strongly set in its favour, that the physician who prohibits them entirely, is in danger, in case of a fatal result, of censure from the patients' friends, for the omission. The pilular is also a very objectionable form of administration; being calculated to lead to a slow absorption, and a protracted contact of the remedy, with a limited portion of the gastro-intestinal mucous membrane; favouring thus a concentrated local action, and the development rather of its topical irritant, than of its general constitutional influence. The form of administration in complete solution, in as large a quantity of water as it is probable will be entirely absorbed in the intervals between the doses, I regard as important.

Although I have had reason to be gratified with the method above recommended of administering the remedy in question in pneumonia, it is more than I am willing to assert, that its noxious operation can be thus, in all cases, entirely obviated.

More recently, with the same object in view, in some cases I have adopted the plan of administering the tartrate of antimony and potassa, in the form of enema, under the impression that its local irritant action upon the rectum, would be unimportant, in comparison with that on the stomach and duodenum; hoping the while, that in adequate doses its general sedative operation might be as well secured. In the use of the remedy, after this method in pneumonia, I generally give about three grains every third hour, with fifteen or twenty drops of the tincture of opium in an ounce or two of warm water; and its controlling influence, where the enemata have been well retained, has

not appeared to me appreciably less, over the febrile excitement, and local morbid action, than when I have administered it by the mouth.

Although the results of my practice from this method of treatment have been highly favourable, one case stands on record in my case book, in which it was principally adopted, calculated to cast a doubt upon its invariable innocuousness. Determining in the commencement of the attack to treat the case principally with the antimonial enemata, I ventured—as I thought I might do with safety, having this intention in view, and as the attack was a very violent one—upon a more free administration of the remedy by the mouth, during the first eighteen hours, than is my common practice; and it is not improbable that it was to this, in conjunction with the action of mercurials administered occasionally by the mouth during the progress of the case, that the metastasis was in reality attributable. Still I could not entirely divest myself of doubt on the subject; but even admitting in this instance an unfavourable operation from the enema treatment, I still rest satisfied of its comparative safety, in contrast with the usual method of administering the remedy by the mouth.

In the case in question, up to the evening of the fifth day, the patient was apparently doing well; the febrile excitement regularly moderating, and the organic disease gradually subsiding. At this time, a *very slight* tendency to tympanitis was discoverable, and a more rapid removal of the thoracic dullness on percussion had taken place, than between any two of my previous visits. The patient expressed himself better, however, and the general symptoms were apparently favourable. It was consequently with no slight surprise on the part of the patient's friends, as well as of a professional friend who, on this occasion, visited the patient with me, that my intimations were received of a probable speedy fatal termination. The signs and symptoms of pneumonia rapidly disappeared; the tympanitis increased; diarrhœa, thirst, restlessness, jactitation, delirium followed by incomplete stupor of short duration, came on, and in ten hours from the time of the first symptom of the approaching change, he was dead.

ART. IV.—*Bernard's Recent Discoveries in Physiology.* Reported by F. DONALDSON, M. D., Baltimore, Maryland.

IN the previous number of this Journal, we called attention to, and we hope, by giving in detail his experiments, established, two of M. Claude Bernard's discoveries; the first, showing the existence of a communication between the portal vein and the vena cava ascendens, by means of which the kidneys secrete from blood which has not passed through the general circulation; the

second, demonstrating that the liver has the prerogative, heretofore unsuspected, of fabricating, within its own proper tissue, sugar resembling very much the ordinary glucose, and in every particular the saccharine matter found in the urine and in other secretions of patients suffering with the disease known as diabetes mellitus. We now propose giving a brief account of the points in the process of *digestion*, which have been elucidated by the same physiologist; and then we will notice his investigations in regard to the *formation of fat* within the body, and independent of the alimentary materials.

There is, indeed, scarcely a department of physiology to which M. Bernard has not, by his experimental researches, made valuable additions; but that of digestion, from its great importance, has been his particular study, and to him, as we shall presently show, more than to any other living physiologist, do we owe the present advanced state of the science in regard to it; not even excepting Dr. Beaumont, the result of whose interesting experiments on the Canadian, Alexis St. Martin, have been so widely diffused.*

Bernard has had this advantage over Dr. Beaumont, that, whereas the latter could only experiment upon the action of the stomach and its secretions, he, by establishing fistulous openings into the stomach and into the ducts of all the secreting or excreting organs, has been able to carry his researches much farther. It was curious enough, to see walking about in the amphitheatre of the College of France, dogs and rabbits, unconscious contributors to science, with five or six orifices in their bodies, from which, at a moment's warning, there could be procured any secretion of the body, including that of the several salivary glands, the stomach, the liver, and the pancreas. The great value of M. Bernard's doctrines is, that they have been arrived at, not like those of many of his predecessors, from ingenious theories, but from actual experiments on the living subject, repeated over and over again, so that on many points they may be said to be demonstrated. Such, certainly, is the view entertained by all who have had the pleasure of witnessing them.

We cannot, of course, in the brief space of this article, enter as fully as we should wish into the phenomena of digestion, much less can we notice the various theories invented to explain them by the older physiologists, beyond what is necessary to render clear the points dwelt upon by our author. One cannot forbear remarking how much time, as well as genius, has been wasted in framing theories in explanation of conclusions drawn from imperfectly observed phenomena, and, indeed, in many cases perfectly independent of all ascertained facts. It has been too much the habit to form conjectures of what might take place in the economy, instead of endeavouring to find out from observation what actually does occur.—Nor was this error confined to men of the age of Hippocrates, who regarded digestion as the result of a *decoction*, nor to those who considered it severally as a *fermentation*, a *putrefaction*, or

* See Experiments and Observations on the Gastric Juice and Physiology of Digestion, by Wm. Beaumont, M. D., U. S. A.

a *trituration*. Even many of the conclusions in physiology of Liebig, profound and ingenious as they certainly are, are worthless to science, for the simple reason that they are so purely theoretical, supported by little or no observation of the living functions themselves.

Before coming to the more prominent points, we propose commencing, as did M. Bernard, with the *saliva* and its agency in digestion, and then proceeding in order with the other fluids connected with the preparing alimentary substances for assimilation.

We would naturally suppose that nothing could be easier than to ascertain exactly the office of a secretion which can be so readily procured from the mouth; and former observers had confined their investigations almost exclusively to the action of the mixed fluid there found. M. Bernard began his by inserting into Stenon's, Wharton's, and into one of the small ducts of the sublingual gland, small tubes, by means of which the several fluids making up the mixed buccal saliva could be examined separately. After which he produced a free flow from these ducts, by giving to the dog a piece of meat, the presence of which caused at once a free salivary secretion. What was most curious to observe was that, during mastication, the flow was almost entirely confined to the duct of the parotid and to the sublingual; whereas, during the motion of deglutition, when the tongue threw the bolus back into the pharynx, the secretion of the submaxillary was the greatest. Each separate secretion, as well as the saliva, as swallowed, was alkaline in its reaction, the acidity of the mouth during abstinence, which is owing to the secretion of the small buccal glands, being neutralized. M. Bernard remarked, he had always found that this, as other alkaline secretions, is best excited by the presence of acids, and the reverse is the case in regard to the acid fluids which flow most freely when alkalies are administered.

The physical characters of the several salivary secretions are very different; that of the parotid and sublingual glands is clear, and as limpid and thin as water, while that which comes from the submaxillary is thick and viscid, resembling in colour and in consistence ordinary simple syrup. From these facts M. Bernard has concluded that the mechanical use of these secretions is not the same—that of the parotid and the sublingual being principally to saturate the food, and thus facilitate mastication; the submaxillary, on the contrary, rendering easy the process of swallowing by its glutinous properties. In these, as in all his other investigations, he was not satisfied with the result of his first essay, but followed it up by others which confirmed it. He made an opening into the œsophagus of a horse, from which he drew the alimentary bolus as it descended, and on weighing it he found that by the imbibition of saliva it had increased elevenfold—showing what a large quantity of saliva was necessary. He next tied Wharton's duct, and found that it required forty-one minutes to masticate, so difficult was it, what previously had demanded only nine minutes; and the mass, when withdrawn from the œsophagus, was covered with mucus and a glutinous fluid, the

interior was dry and friable, and the whole only increased in weight three and a half times. By giving freely of water to the animal to drink, it appeared to promote mastication almost as effectively as did the secretion of the parotid; the quantity of parotidian saliva being in proportion to the dryness and toughness of the ingested substance. If the ducts of the other two glands be tied, there is not the same difficulty in mastication. The water of the buccal mixed saliva is in the proportion of ninety-eight parts in a hundred, the other two being composed of the salts of potash and soda, and of the animal substance *ptyaline*. Thus it is shown that the mechanical use of the secretion of the salivary glands is very important.

In regard to its chemical action, it will be remembered, that Beaumont found that a piece of meat put directly into the stomach through the fistula, was digested fully as well as though it had been first subjected to the action of the saliva. From this fact, which has been repeatedly verified by others, it was concluded that this fluid had none other than its physical action on food. That this is a mistake, can easily be shown by placing cane sugar or any amylaceous substance in a test-tube filled with saliva, and applying heat of 98° Fahr.—when in a few minutes, and, according to Mialhe,* if it be powdered starch in solution, in less than one minute, there will be a transformation into dextrine, and then into grape sugar, and, if permitted to remain longer, into lactic and bituric acids. This may be easily tested by the addition, at the different stages, of the tincture of iodine to the solution—whereupon may be noticed the gradual disappearance of the blue of the iodide of starch, which changes at first to a rose, and then, owing to the complete alteration of the starch as such, the iodine is perceived to have no action at all. From these premises M. Mialhe was led to believe that, as the saliva, owing to a peculiar ferment, had that effect out of the body, therefore, such must be the case in the ordinary process of digestion, and concluded that this fluid completed the transformation of all that class of aliments; but Bernard has since proved the action of the saliva upon amylaceous matter to be very gradual, unless it is reduced to a powder, and is in solution; moreover, any acid placed in contact with it at once destroys its power, so that, as it cannot effect any change when it is mixed with the gastric juice, which is acid, the time is too short for it to have more than a very partial transforming power in the mouth and in the œsophagus. To establish this, M. Bernard killed a dog who had been fed upon potatoes, and, on opening the stomach, he found there the merest trace of sugar, but much unaltered starch, even in the mass passing through the pyloric orifice out of the stomach. This he thought conclusive of the point that, ordinarily, the saliva only acted mechanically in digestion, except in a slight degree upon amylaceous substances—nature having provided another fluid for the purpose of fitting this class of aliment, as well as fat and nitro-

* See "Mémoire sur la Digestion, et l'Assimilation des Matières Amylöides et Sucrées. Paris, 1846."

genized matter for absorption and nutrition. A singular fact, first noticed by M. Magendie,* and confirmed by Bernard, is, that neither the secretion of the parotid, nor that of either of the other glands separately, nor when mixed with each other, have any effect even upon amylaceous matter, but yet, that the mixed saliva of the mouth unquestionably has; from which it would appear that the active principle, whatever it is, that effects the transformation, must come from the small buccal glands. In diabetes, neither in the human subject nor as produced artificially in animals, can any trace of sugar be detected in the salivary secretion. We before noticed, that though the cyanide of potash administered by the mouth could be detected in the other secretions, yet it did not enter into the saliva.

The interesting question arises, as to what is the principle of the saliva, which, when permitted to remain sufficiently long in contact with starch, converts it into dextrine, sugar and lactic acid. Berzelius was the first to isolate, by the addition to filtered buccal saliva of six times its volume of absolute alcohol, an organic substance which he called *ptyaline*. Mialhe, in his memoir before the Academy of Sciences, maintained that the organic precipitate obtained by Berzelius and by himself, had properties analogous to the *vegetable diastase*, which in malt converts the starch into sugar, and that it should be named the *animal diastase*. There was no doubt that such was its action; but was it a substance of a peculiar nature existing only in the saliva? To test this, M. Bernard put other fluids of the body with starch, and, on raising them to the temperature of the body, found that many of them had exactly the same transforming power as the saliva. Such was the case with the water in which dried buccal mucous membrane had been soaked, showing, as he had supposed, that the ptyaline was derived from it. The serum of the blood, a liquid obtained from a cyst of the liver, the mucus from the nose in coryza, or indeed, from any irritated mucous membrane, had precisely the same effect. On giving a starch injection to a patient suffering with a diarrhœa, he found sugar in the stools, &c. From these results, M. Bernard concluded that the fermenting principle of the saliva was not different from some other nitrogenized matters in its action upon amylaceous substances.

The Gastric Juice.—At the commencement of his experiments upon this fluid, M. Bernard made before his class, an artifical opening into the stomach of a dog. He cut through the abdominal parietes in the right hypochondriac region, and, drawing out the stomach with a pair of forceps, he made an incision about an inch and a half in length, into which he introduced a short, wide canula, either end being terminated by a rim resembling very much a button. One of these ends being firmly clasped by the lips of the wound of the stomach, he was enabled to draw the organ near the surface, and fasten the other extremity of the tube to the integuments. A cork put into the external orifice, prevented any liquid from flowing out. In a few days, owing

* See Précis Elément. de Physiol., Paris, 1846.

to the slight sensibility of the peritoneum of the canine race, the animal was well, and the wound around the canula healed, so that the gastric juice could be extracted with perfect ease, when its secretion had been excited by the presence of some alimentary substance; the stomach, as shown by Beaumont, not producing any during the time of abstinence. The operation required but a few minutes, and to show how little uneasiness the presence of such an opening caused the poor animals, a dog was shown on whom a similar operation had been performed two years previous, and who had from that time furnished gastric juice whenever wanted. He appeared to be in perfect health.

Bernard has verified, as had previously M. Blondlot,* many of Beaumont's conclusions in regard to the action of the stomach and of its secretions. Their observations are important, as showing the identity of the digestive juices of the dog with that of the human subject. We forbear mentioning many of these results, which are doubtless familiar to our readers.

The gastric juice can be seen exuding from the mucous surface under the coat of mucus always found there, like the perspiration from the skin; but as to what it is exactly that secretes it, there appears to be considerable question. Bernard is inclined to believe that it is furnished by the corpuscles discovered by Gruby, which are very numerous, and exist only in the stomach; they are surrounded by a vascular network, and are found between the villosities. There are also two kinds of small glands perceptible in this mucous membrane—one a slight tube resembling the finger of a glove; the other with a bulb, which terminates in a narrow orifice at the gastric surface. Some have thought that the former of these furnish the mucus, and the latter the gastric juice. That the gastric juice comes more particularly, if not exclusively, from the portion of the mucous membrane around the pyloric orifice and from that near the liver, is proved by Bernard in a very pretty and simple experiment. On introducing into the jugular vein of one side some cyanide of potash, and into the other the proto-sulphate of iron, both in solution, they pass through the circulation side by side without combining, thus revealing the valuable fact that, though substances have a great affinity for each other, yet that no union of them can take place while they remain in the blood-vessels, probably because the heat evolved from a single or double chemical decomposition taking place in the circulation would be too great for the economy, as we see nature making use everywhere in the alterations and destructions in the animal system of mild ferments, and not of strong chemical agents. This fact of itself is one of great importance in demonstrating how unfounded are many of the ingenious theories of the chemical action of remedies after they have been absorbed. These substances, however, when brought into contact in the free secretions, unite at once where there is air. M. Bernard noticed, on examining the stomach of a dog whose jugulars he

* Traité Analytique de la Digestion.

had injected as above, that the mucous membrane of the stomach was of the normal colour, except near the pylorus and over the hepatic portion, where it was of the deep blue of the prussiate of iron, the result of the union of the two substances in the gastric juice, as it was poured out. The cyanide of potash can be detected in the secretion of the stomach in twenty-five or thirty minutes after its ingestion, earlier than in any of the other secretions. During the period of abstinence the constant presence of mucus renders the reaction of the stomach alkaline, and it is only when the presence of some substance in the cavity excites the flow of the gastric juice itself, that it becomes acid. M. Bernard finds, as did Beaumont, that any febrile movement has the effect of arresting this secretion, and thus interfering very materially with digestion—a practical fact which ought not to be overlooked.

The gastric juice as taken from the fistulous opening was invariably acid in its reaction, was clear as water, without taste, as without any odour except that of the particular animal. MM. Leuret and Lassaigne* have confirmed M. Bernard's observation, that the internal membrane of the stomach, when free from mucus, presents always an acid reaction.

In regard to the composition of this gastric fluid, it seems agreed, that at least ninety-eight parts in a hundred are pure water, the remaining two being made up of a free acid, the chlorides of lime and ammonia, phosphate of lime, an aromatic principle, and a particular animal matter, generally known as *pepsin*, and called by some *chymosine*, and by others again *gasterase*. M. Blondlot in his book already quoted, denies that there is a free acid in the gastric juice, the acidity of which he believes to be owing to the presence of the acid salt, the bi-phosphate of lime. His principal reason for this opinion was that he found, on the addition of carbonate of lime, that there was no effervescence produced. This, however, MM. Bernard and Barreswil† have proved to be caused by the extreme dilution of the acid, for, on concentrating the juice by evaporation, and then adding the lime, the carbonic acid was evolved. We have, moreover, the authority of M. Dumas in his Chimie Physiologique, that there is no biphosphate of lime in the stomach. The question has been much discussed as to what this free acid is, and what is its action in the process of digestion. Dr. Prout tells us that, on testing some gastric juice which he had distilled, with nitrate of silver, he found hydrochloric acid, and MM. Tiedeman and Gmelin say the same. Dr. Dunglison found this acid in the gastric juice of Dr. Beaumont's subject. Dr. Prout thinks that it is formed from the chloride of sodium of the blood being decomposed by a galvanic action, the liver and the gastric mucous membrane representing the two poles—the acid remaining in the secretion, the soda passes off by the liver. Berzelius said he could conceive of no other way than this by which it could be found in the stomach. However formed, there can be no doubting the

* Recherches Physiol. et Chimique.

† Analyze du Sucre Gastrique, 1844.

opinion, now the generally received one, of the distinguished persons named as having detected this acid in the juice when distilled—but this does not establish its presence as a free acid in the stomach itself, for it may be the result of a decomposition of some salt. MM. Bernard and Barreswil state that, on adding a small proportion of hydrochloric acid to the gastric juice, it does not pass in distillation until near the end of the process. They think that, in the rare cases where this acid has been found in the distilled secretion, it was owing, during the last moments of the operation, to a decomposition of the chlorides from the altered chemical affinity caused by the concentration, or from the action of some other principle there found, probably the lactic acid. Their ground for so thinking is that, on distilling water containing table salt, after having rendered the solution acid by the addition of lactic acid, the last drops show on using the nitrate of silver the precipitate of the chloride of silver, owing to the formation of muriatic acid. Another proof they urge that this acid cannot be present is that if a small proportion of oxalic acid be added, there is produced at once a white precipitate of the oxalate of lime, which formation the presence of a very minute quantity of hydrochloric acid would prevent. Some have thought that the acid principle might be *acetic acid*, but neither Blondlot nor MM. Bernard and Barreswil have been able to obtain it by distillation; which, owing to its being very volatile, is sufficient proof that it is not present. M. Chevreul, some years since, in analyzing some gastric juice for Magendie, concluded that the free acid was the *lactic acid;* this opinion is sustained by Bernard and Barreswil, in their recent memoir presented to the Academy of Sciences. They recognize it by all the characters insisted upon by distinguished chemists. It forms salts of lime, barium, copper, and zinc, soluble in water; it gives a salt of lime soluble in alcohol, and precipitable by ether from the alcoholic solution; and can produce a double salt of copper and lime, the colour of which is more intense than that of a simple salt.* It is, moreover, reasonable to suppose that nature would employ in the stomach, as she does elsewhere, mild agents, particularly as M. Bernard has proved that any acid principle would act just as efficiently as that found in the gastric juice; this he showed in artificial digestion with this secretion. On rendering it alkaline the process was completely arrested, but it commenced again on adding any acid, no matter what, provided the quantity was sufficient to change the reaction. Moreover, in injecting into the circulation food digested artificially with gastric juice, thus rendered acid again, if the acid employed was a strong mineral one, such as the hydrochloric, it was difficult to add so small a proportion that the injection would not prove fatal. Bernard found, in trying his experiments in injecting different substances into the veins, that the lactate of iron, which is the most absorbable of all ferruginous preparations, was the only one which

* See "Analyse du Sucre Gastrique." (Comptes Rendus de l'Acad. des Sciences, 1844.)

was not poisonous. From these facts M. Bernard concludes that *lactic acid* is the free acid found in the gastric juice, and that there is neither acetic nor hydrochloric present.

In regard to the action of the gastric juice, and to the whole process of digestion, we cannot but be struck with how valueless all the theories ever invented are in comparison with such facts as were afforded by the investigations of so accurate an observer as Dr. Beaumont, upon the opening into the stomach of St. Martin. The science now possesses two other cases of the kind in human subjects, a woman noticed by Circaud, and another spoken of by Helm,* and now of numerous ones produced artificially in animals. From these many points in digestion, before obscure, have been determined.

Dr. Beaumont was inclined to believe that the gastric juice was the only solvent, and that it acted upon and digested all kinds of food. This was a natural conclusion from seeing them all in solution, and as ready to pass out of the stomach, in, as he supposed, one homogeneous mass, called *chyme*. His observations unfortunately were confined to the operations in the stomach alone, and he mistook the dissolution of all alimentary substances, from the imbibition of the acidulated water, to be their digestion. M. Blondlot states, as the result of his experiments, that the action of the fluids of the stomach was limited to that class so rich in nutriment, the prominent constituent of which is nitrogen. He found that in artificial digestion such was certainly the case, and he concluded that the process was the same within the body. M. Bernard found, as we before mentioned, that amylaceous substances passed through the stomach, only having been but slightly altered by the saliva; in the same way, on opening the duodenum of a dog, he repeatedly found fatty matters coming from the pylorus perfectly unchanged. He then repeated Blondlot's experiments in regard to the action in the stomach upon meat, the principal constituents of which are fibrin, albumen, and creatin, all nitrogenized substances—he found that the gastric fluid had, when kept sufficiently long in contact with it, rendered it fit for absorption, for when he injected the fluid containing it into the circulation, that it was not discoverable in the urinary secretion, thus showing that it was assimilable; this was the case also with casein. He was astonished, however, to find, on examining the fluid mass passing through the pylorus, that he could still discover, though minutely divided, the muscular fibres in parts, showing that the whole amount had not been completely digested. So that, as the saliva had the properties of converting starch into dextrine, &c., when it remained long enough with it, yet that ordinarily in the process of digestion, the time of contact was too short for the complete action to take place. So it was in regard to the digestive powers of the gastric fluid on azotized food. M. B. agrees with Blondlot, that liquid albumen is not coagulated at first, before being digested in the stomach, but that it is merely rendered opalescent.

* Cours de Physiologie, par P. Bérard, 1850.

Casein, however, is coagulated before being altered by digestion; the mucous membrane itself, as is seen in that of the stomach of the calf, known as rennet, has the effect of coagulating milk. All other classes of aliment are merely saturated and softened by the saliva and the watery portion of the gastric juice, and thus more easily divided by the peristaltic motion preparatory to their digestion further down in the intestinal tube.

The action of the gastric juice is found by Bernard not to be the same in all animals, but to be modified by the kind of food used habitually; thus, in herbivorous animals, as proved from that collected from an ox, it acts much less perfectly than does that taken from a dog.

It is thus seen that not only did Beaumont exaggerate the action of the gastric juice, in supposing it the universal solvent, but Blondlot erred even in thinking that in the living subject all the nitrogenized articles were digested in the stomach. So that the term *chyme* has in fact no definite meaning—the bolus passing out of the stomach being composed partly of digested and partly of undigested food—there being only a portion of the amylaceous and of the azotized, which are ready for assimilation, and in ordinary digestion the whole mass is submitted to further action from the intestinal fluids. Instead of digestion being completed in the stomach, it is merely commenced.

The question has often presented itself as to what was the principle in the gastric fluid which acted upon food? Those who believed that there was present more or less of free hydrochloric acid, taught that it was it, or at least that because acids destroyed meat, therefore, it by so doing digested them. Of this hypothesis Blondlot disposed by trying in separate vials the comparative action of mere acidulated water and the gastric juice; in both there was a change, but in the former there was merely a disaggregation of the muscular fibres. Bernard's experiment was still more conclusive. After submitting pieces of meat to the action of the two liquids, as did Blondlot, he injected them into the circulation, and found that that which had been subjected to the action of the simple water and acid, had passed off entire in the urine, whereas the other, having been assimilated, could not be detected in the renal secretion. The action, moreover, stated M. B., of the two fluids upon bony matter was very different, the acid water attacked and destroyed the mineral portion, whereas the gastric juice digested the gelatin and left the phosphates and carbonates unaltered. This may be easily seen by examining the stools of dogs fed upon bones. The active principle of the gastric fluid is now generally admitted to be the organic principle *pepsin*, which can be precipitated by absolute alcohol. It differs from all other organic substances by its coagulating casein without the aid of an acid. It does not, however, digest any species of food when not mixed in an acid solution, as may be easily seen in artificial digestion by rendering the liquid alkaline, but the process may be again commenced by adding any other acid; whereas, if you raise the temperature above 98° Fahr., you destroy for ever the digestive properties of the pepsin, and the fluid ceases to act. The action

of the acidulated water is necessary before the pepsin can effect anything; the latter acting in force in proportion as the food is softened and divided by the other.

The influence of the nervous system over the secretion of the gastric juice, and consequently upon digestion, has been much discussed, and contradictory experiments have been published, even by such men as Sir Benjamin Brodie, Dr. John Reid, Longet, and Magendie. Some asserting that the integrity of the pneumogastric was necessary, and some the contrary; others again that it was through the grand sympathetic that any nervous influence was conveyed. To show what M. Bernard has done to elucidate this point, we propose giving two or three of his experiments. The two substances, *emulsine*, the albuminous matter found in almonds, and so named by Liebig, and the *amygdaline*, the principle of bitter almonds, when administered separately, are perfectly innocuous, but when united, there is at once a formation of hydrocyanic acid, and of course if they come in contact in the stomach of an animal, they must prove poisonous. Aware of this, he selected two dogs, on one of whom only he performed the resection of the pneumogastric nerve; to both he administered at the same time a certain quantity of emulsine, and half an hour afterwards he gave to each of them the same amount of amygdaline. The dog whose nerves were intact escaped without injury, whereas the other died in a few minutes. From this it was concluded that the first animal had digested the emulsine before the amygdaline reached it, but, in the second dog, in consequence of the cutting off of the nervous communication the gastric juice was not secreted, and the first ingested substance was not acted upon, but remained in the organ, and the other coming in contact with it, there was a formation of prussic acid; which, being absorbed, proved fatal. Another experiment proved indirectly the same fact. He gave to a rabbit which had been fasting thirty-six hours, and whose urine had become clear and acid, a meal of carrots, and in two hours and a half the urinary secretion became opake and alkaline, and so remained for eighteen or twenty hours. He found by cutting the pneumogastric during that time, that the urine changed again to be acid in its reaction, and clear. On another animal he perceived that a resection of the nerve, immediately after the meal of carrots, prevented entirely the urine from becoming filled with carbonates, which cause the alkalinity and opacity, and which are derived from the digested vegetable. So the urine remained clear exactly as if there had been no carrots in the stomach. This effect is attributed to the non-secretion of the gastric fluid by which the substances could be digested; or, as in this case, prepared for digestion. There being no liquid in the stomach, of course they were not softened or divided, but remained there unaltered. We are at a loss to conceive of any other than M. B.'s explanation of these results, namely, that the gastric juice is under the influence of the eighth pair. But he has given us still more conclusive evidence of this in his researches on the stomach by means of fistulous openings. He cut the pneumogastric of an animal into

whose stomach he had previously introduced a canula at the moment when there was a free flow of gastric juice excited by the presence of an alimentary bolus; at once he saw the mucous membrane, which had been tense and turgid the moment before, become withered and pale (the vascularity greatly diminished), and the gastric juice ceased to flow. On introducing his finger into the stomach itself, the walls were perceived to be perfectly flaccid, and there was no longer the gentle pressure which he had previously felt. Another proof that after the resection there was no further secretion, was that on putting sufficient salt into the stomach to destroy the power of the gastric juice secreted before the operation, the bolus became putrid in consequence of the arrest of digestion.

We have now traced the alimentary bolus to the pyloric orifice of the stomach about to pass into the duodenum. At this point, as we before stated, it has received the name of *chyme*, which, far from being a homogeneous mass, consists of the fatty matters unaltered, of the amylaceous but partially converted into sugar by the saliva, and finally of the azotized material digested ordinarily but in part by the gastric juice.* The whole has invariably an acid reaction.

It is difficult to ascertain from the text-books on physiology what are the prevailing views as to what takes place in the process of digestion below the stomach. The impression seems to be that the intestinal fluids separate the nutritious portion of the chyme, which is absorbed by the lacteals and known as *chyle*, from the excrementitious which passes through the intestine. Carpenter speaks of chyle as imperfectly elaborated blood. It is particularly to this heretofore obscure stage of digestion that we think M. Bernard has made some brilliant contributions, as we shall proceed to show.

The Bile.—The most important point in regard to this fluid is to decide in the first place the much discussed question whether or not it is purely excrementitious. That it is so, was supposed from the character of its proximate elements, the amount of hydro-carbon; to remove which, as an auxiliary to the lungs, whether from the aliment as such, or as effete matter taken from the blood in the course of the circulation, was thought to be its use. Moreover, it flows not as the ordinary secretions at the time of digestion, when needed, but, like the urine, more or less constantly. An objection, however, seems to present itself to its being exclusively excrementitious, from the point in the intestinal canal where it is emptied. Why, if merely to throw off what is injurious to the system, should it be poured out at the very commencement of the small intestines, where absorption is most active? Such is not the mode in which nature provides for the other excrements. It would, from this fact merely, be natural to suppose that it did act as a chylo-poietic fluid. But we

* Dr. Beaumont's tables, so frequently quoted and so much relied upon, of the mean time of digestion of the different articles of diet, are thus rendered of but little value—he having founded them upon the supposition that, when any substance disappears from the stomach, it has undergone complete digestion.

are not without experiments. M. Blondlot, whose authority we have so frequently quoted, declares,* after several times tying the ductus choledochus of dogs, that the biliary secretion is not necessary for digestion; because, though nearly all the animals died, yet that in two or three instances they survived months, and in one case years. The deaths he thought were caused by the retention of the bile within the blood, as was shown by the jaundiced tint of all the tissues and secretions of the body; indeed, in more than one case the bursting of the biliary duct into the peritoneum caused death. The inferences of Blondlot might appear conclusive had we not the experiments of the Belgian professor, M. Schwann, which have been since repeated and verified by M. Bernard. They too succeeded in tying the ductus choledochus without killing the animals, but on making autopsies of them some months after, they found that a new duct to convey the bile to the intestine had been formed! In other cases they inserted canulæ into the duct so as to convey the bile outward, and thus prevent a new one from being made, and the invariable result was fatal. This was conclusive, as it showed that death was produced not only by the poison of the bile, but by the mere absence of its flow into the digestive tube. Moreover, if the biliary fluid is only effete matter, why is it that it is not detected as such in the excrement of the bowels? Liebig tells us that no choleic acid is ever found in the stools, but that it must be re-absorbed; in fact, the colouring matter is all that is there discoverable of the bile. It being decided that this secretion is necessary for the process of digestion, and not merely excrementitious, the important question arises as to how and upon what substances it acts. To solve this, Sir Benjamin Brodie tied the ductus choledochus of cats, and on opening the abdomen he found that the lacteals were not filled, as usual, with a whitish mixture of the consistence of cream, but with a transparent fluid, which he regarded as composed of lymph and of the most liquid portion of the chyme. Supposing that the white chyle was fatty matter, he drew the conclusion which he published, that the bile digested fat. Magendie, on hearing of these interesting experiments, hastened to repeat them on dogs, his favourite victims. A great number were sacrificed before he could succeed in getting two of them to live even a few days; and in them, contrary to what Brodie had stated, he found that a white chyle had been absorbed by the lacteals, and that as before fæcal matters had been formed, notwithstanding the interruption of the flow of bile.

It is painful to think of the loss of life to the dog and cat race this difference of opinion, between such distinguished men, has given rise. M. Blondlot alone killed no less than twenty-five dogs in these experiments. Several others entered the field, among them Dr. Mayo, and MM. Tiedemann and Gmelin. It is curious, and at the same time discouraging, to see the different conclusions at which they arrived—the partisans of each equally positive in

* Essai sur les Fonctions du Foie, Paris, 1846.

their opinion. As we shall presently show, M. Bernard has cleared up the difficulty by explaining what is properly speaking the cause of the white fluid in the lacteals, from what it is formed and how.

Beaumont added bile, taken from a cow recently killed, to some chyme coming from St. Martin's stomach, and found that the effect was to separate it into three distinct parts, a reddish-brown sediment at the bottom, a whey-coloured fluid in the centre, and a creamy pellicle swimming on the top. The centre he concluded was chyle, the creamy pellicle digested fatty matter, and the sediment the excrementitious portion. Others had the same results. Müller* made an emulsion by adding bile to oleaginous substances. Tiedemann said that the white flakes seen in the liquid was mucus. This we believe was the uncertain state of our knowledge in regard to the action of the bile, when Bernard commenced his experiments. He had observed that in most animals, as in man, the duct from the pancreas opened either side by side in the duodenum, or else together with the biliary duct; in the dog that there were two canals from the pancreas, one emptying with the ductus choledochus and the other lower down in the intestine; in the rabbit, however, by a singular provision of nature, the pancreatic duct entered the duodenum eleven or twelve inches further down than that from the pancreas, the intestinal canal being unusually long for so small an animal.

Having procured the biliary secretion from the rabbit, perfectly pure and fresh, and certain that it contained no other secretion, he tried its effect upon the several varieties of food. He found that when thus used alone, it had no possible action except upon rancid oil, with which it formed a kind of soap, but upon pure oil there was nothing more than a mere mechanical mixture, the two substances separating when left standing, the oil floating on the surface. Believing that it could not be without its use, he determined to try it in combination with the other intestinal fluids. It was a thought worthy of him, and productive of important results.

Mixed with gastric juice, either artificially or in the upper part of the duodenum, as could be observed in the rabbit, it is shown to have several properties. It renders the mass alkaline; it precipitates and renders insoluble the azotised portion, leaving untouched the saccharine and the fatty. This precipitate Magendie designates "le chyle brut." It further renders the chyme indestructible and imputrefactive, by regulating the chemical reactions and the evolution of the gases arising from decomposition. This M. Bernard substantiated by showing two pieces of meat in vials, where they had been put three months previous, the one with gastric juice alone, and the other with gastric juice and bile mixed—from the former, there was a strong ammoniacal odour resulting from decomposition, whereas the latter was pure and free from any smell whatever.

By precipitation, bile, moreover, has the effect of arresting every kind of fer-

* Manuel de Physiologie.

mentation of all organic substances. To prove this to his auditors, Bernard introduced into the stomach of a dog a cake of yeast, and in two hours, when it was perfectly saturated with gastric juice, he withdrew it, and applying heat to a portion of it, there was an evolution of carbonic acid, showing the commencement of the fermenting process; to the remainder, before employing heat, he added some bile, and though kept over a hot water bath much longer than the other, there was no evidence of its fermenting. Another experiment was performed to demonstrate this property of preventing fermentation, by the administration of the emulsine and amygdaline. The emulsine, which is the ferment, was injected into the rectum, and the amygdaline into the stomach—in due time the latter descended, or part of it, and came in contact with the former in the rectum, and in a few minutes, from the formation of prussic acid, the animal died. In another subject the emulsine was placed in the stomach, and the amygdaline in the rectum, the reverse of what was done in the first instance. Here there was no fatal result, in consequence of the bile having destroyed the ferment before it reached the other substance in the rectum. Still another proof may be drawn from M. Schwann's experiments in introducing canulæ into the ductus choledochus. The animals licked the bile as it flowed externally, and it caused their death the sooner, by precipitating the pepsin in the stomach, and thus preventing all digestive action of the juice. In this way the bile prevents the formation of the gases in the intestinal canal from decomposition of the several articles of food. The medical application of this will at once strike your readers—when from any cause there is a deficient supply of bile to the intestine, or when more food is swallowed than the quantity of bile can act upon (for of course there is a limit to the amount of this secretion, as Beaumont found there was to the gastric juice), or if from any other pathological cause the character of the fluid is altered, or its action prevented, there is a putrid fermentation, from which there is an evolution of flatus and a consequent diarrhœa. Under these circumstances there is a predominance of alkalies, and we would suppose, that acids could be advantageously employed. By what principle the bile acts seems undetermined. Prof. Platner, of Heidelberg, supposes that the salt, the choleate of soda formed in the bile from the union of the peculiar fatty acid, choleic with the soda, acts upon the lactate of albumen, fibrin, or casein, as the case may be, and that there is a double decomposition resulting in the formation of the lactate of soda and the choleate of albumen, &c.

Before proceeding to the action of the bile in combination with the pancreatic juice, which constitute what is, properly speaking, the *intestinal fluid*, let us arrive at what to us is one of the most brilliant discoveries of this distinguished physiologist—*the use of the pancreas*, which is, that its secretion enjoys, to a very high degree, the prerogative some had attributed to the bile, that of emulsioning oleaginous bodies, and thus rendering them capable of absorption by the lacteals, and that in fact, it is the only fluid concerned in the digestion of fatty matter! In making some experiments, with a view of

comparing the digestion of herbivorous animals with carnivorous, he, by keeping all other food out of its reach, forced a rabbit to eat nothing but meat, after which he opened the abdomen, and observed that the absorbent vessels of the small intestines contained a limpid fluid for the distance of about twelve inches below the pylorus, and that from that point they were white, and contained the same fluid which is found in the lacteals of the human subject, and in the dog throughout the whole extent of the duodenum. Remembering that, in man, the ducts of the liver and of the pancreas enter together near the pylorus, and that in the dog one of the pancreatic canals empties high up, with the duct coming from the liver, it at once occurred to his quick mind that it must be the secretion of the pancreas which made the milky fluid, by acting upon the fatty matters, and, of course, it was only below the insertion of the duct which conveyed it to the intestine that the absorbents contained the emulsion which gave them their peculiar white appearance.

He proceeded forthwith with direct experiments, and extracting pure pancreatic juice, he mixed it at a mild temperature with oil, and afterwards with butter, mutton tallow, and indeed, with all varieties of fat, and with them all he made an emulsion resembling in colour and in consistence, and apparently in every particular, the chyle he had extracted from the mesenteric lacteals. To test whether or not there was any other liquid or secretion of the body which had the same effect, he tried the bile, the saliva, the gastric juice, the serum of the blood, and even the cephalo-rachidian fluid; with all, the result was a mere mechanical mixture, which, on standing a few minutes, was destroyed just as though it had been attempted to mix oil and water; whereas, the emulsion formed by the fat and the pancreatic juice remained perfectly unchanged. These experiments, made out of the body, were not conclusive enough to a mind so accustomed to close and vigorous observation, but needed confirmation, which he was not slow in procuring for himself and for science. After keeping a rabbit fasting for some time, he gave it a full dose of twenty grammes of fat, and allowing sufficient time for it to be pushed down the intestine, he killed the animal in three hours, and found the absorbents nearly empty to the point of insertion of the pancreatic duct, containing only a small quantity of a limpid fluid; whereas, below that they were distended with white chyle. In the intestinal canal above the duct of the pancreas, there was some melted fat which was unaltered in colour, but below it was seen more or less of the same white emulsion corresponding to that contained in the lacteals. Here it was evident the biliary secretion had had no effect, for it was poured into the canal near the stomach, and the substance was unaltered for inches below. His next essay was in tying the pancreatic duct of another animal of the same species before giving the oil, and on opening the abdomen, after the same lapse of time, he found the lacteals free from chyle, and the oily matter undigested in the intestinal tube, passing down to be thrown off in the excrement. On putting a ligature around both the pancreatic ducts of a dog, he had the same result. He could now assuredly be satisfied of the truth of his

discovery, that the digestion of fatty matters was the peculiar office of the pancreas. On repeating his experiments in the presence of M. Dumas, he remarked, that he knew of no alkali, not even the caustic potash, which could make with oil so perfect an emulsion, or in so short a time.

There can now be no difficulty in explaining the contradictory results of Brodie's and Magendie's experiments in regard to the action of the bile on fatty matter. The former had operated upon cats where, owing to the proximity of the ducts of the liver and the pancreas, it is difficult to tie the one without the other; and he, by putting a ligature around both, of course prevented the flow of the pancreatic juice as well as that of the bile, and thus interfered with the digestion of fat, and consequently of the appearance of the thick white fluid in the absorbents. Magendie selected the dog, and in tying the ductus choledochus he probably included also one of the pancreatic ducts; but he left free the other, which opens further down in the intestine, and which acted upon the particles of fat, and they were afterwards taken up by the lacteals. Müller's error can be accounted for in the same manner; in the bile he experimented with, there must have been a mixture of the pancreatic fluid. If further proof be desired, it may be found in the fact mentioned by M. Bernard, that the herbivorous animals, when confined to their ordinary food, have no white absorbents or lacteals. He has, moreover, found that in all mammiferous animals the pancreatic duct always empties with or below the biliary duct, never above.—For the purpose of showing those present how he obtained the pure secretion of the pancreas, and its action, he had a dog placed on the table before him, and, after securing him well by tying his feet and muzzling him, he cut into his right flank, and drawing out the pancreas, which was of a bright rose, the colour it always presents when secreting, he inserted a small silver tube into the duct, and secured it there by a ligature. At the end of the canula was an India-rubber bladder, to receive the secretion which flowed only a drop at a time. At the close of the hour, during which time the animal continued eating without being in the least disturbed, the sac was found to contain about two fluidrachms (f℥ij). The Professor remarked that, if the canula was withdrawn and the wound closed, it would be healed up in two or three days without any unpleasant consequences. The fluid, as thus drawn, was colourless and viscid, and in some respects resembled the saliva extracted from the submaxillary gland, but differed from it essentially, being coagulable by alcohol and by heat. Its alkalinity was evident, only a drop sufficing to restore the blue to reddened litmus paper. Its alkaline reaction had been denied by Tiedemann, which, said M. Bernard, must have been owing to his collecting it as it flowed into the intestine, where the acid mucus changed it, for, when collected pure from the duct itself, he had invariably found it alkaline. On adding some of the pancreatic fluid collected in the little bladder to olive oil, and stirring the mixture for a few minutes, there was formed a creamy fluid corresponding very closely to some chyle, which he had, a few minutes previous, collected from the lacteals and the thoracic duct of a rabbit fed upon the same oil. M.

Bernard exhibited the duodenum of a rabbit, and the absorbents in the mesentery. Those from opposite the insertion of the ductus choledochus down to the point where the pancreas empties its secretion, contained a transparent fluid in small quantity; whereas, below that, the white ramifications, showing the presence of the fatty emulsion, were very evident. This last experiment, which is perfectly conclusive, can be easily verified by any one. Keep a rabbit fasting for thirty-six hours, and then administer a dose of fat and kill it in a few hours. To push the oil down in the intestine, and to facilitate matters, a meal of some vegetable may be given.

Although oily and fatty matter are neutral in their reaction, the emulsion is at first alkaline; but in artificial digestion it soon becomes acid, owing, M. Bernard thinks, to the transformation of the fat into glycerin and the fatty acids, margaric, stearic, or oleic, as the case may be. This is evidenced by the odour of butyric acid when butter is the fatty substance used, and the mixture is permitted to stand some little time. We see it stated by Dr. Chambers* that Prof. Frericks, of Berlin, though he admits the truth of the digestion of fat by the secretion of the pancreas, yet denies that there is such a transformation, for that the oil globules do again unite. To this we reply that we have ourselves seen the emulsion after it had remained for days without being disturbed, and, on a close examination, not the slightest change could be detected from what it was immediately after the mixture. Dr. Chambers says that any animal substance undergoing a chemical change, which pancreatic juice does with great rapidity out of the body, in contact with butter, will cause an interstitial fermentation of the butter itself, and thus give rise to the acid smelt. This may be the explanation; but both Drs. Frericks and Chambers have misunderstood M. Bernard, in supposing that he thought that there was a transformation of the fat into glycerin and the fatty acids in the intestine, from the action of the juice of the pancreas; on the contrary, he has proved such is not the case, by finding the emulsion collected in the lacteals to be still alkaline, and in it the presence of fat globules under the microscope, though very minutely divided. Moreover, we have the testimony of MM. Bouchardat and Sandras,† that they have found and recognized in the chyle, the oil of sweet almonds, mutton and pork fat. Certain it is that the globules found in ordinary fat cannot be assimilated without being altered, for, if injected into the circulation, they prove fatal by their arrest in the capillaries of the lungs, through which they are too large to pass, just as bubbles of air entering the veins cause death by the stoppage of the pulmonary capillaries. M. Bernard does think it probable that, in the ultimate changes which fat undergoes in the body, there is a transformation into glycerin and fatty acids. His ground for so thinking is the result of an experiment of M. Magendie,

* On Corpulence, or Excess of Fat in the Human Body, by T. K. Chambers. London, 1850.

† Recherches sur la Digestion, et l'Assimilation des Corps Gras, 1845.

who, having fed dogs exclusively for some time upon butter, found their skins saturated with an oily matter, far from resembling true fat, and giving off the odour of butyric acid. M. Bernard further professes not ever having been able to detect in the blood any of the acids resulting from the oxidation of fatty substances, fat being always neutral as found in the economy; that such conversion must take place only previous to their being given off in the form of carbonic acid and water, in contributing to the formation of animal heat.

We believe that the discovery of the use of the pancreas by Bernard has not been denied. He himself had, a year since, repeated his experiments nearly forty times upon different animals; and we see that recently M. Colin, the distinguished head of the Anatomical Department of the Veterinary School of Alfort, has presented to the French Academy the results of a series of experiments on the pancreatic juice in the principal domestic ruminants, which correspond precisely to those of M. Bernard. M. Colin states that he selected the animals differing as much as possible, in food and in mode of digestion, from the carnivorous.

Although the fact itself is not disputed, yet the explanation appears to be. M. Mialhe, so wedded to his view that alkalies are the great solvents in the animal system, was inclined to impute* to their presence in the secretion the cause of the formation of the emulsion. M. Bernard, however, shows the falseness of this hypothesis by demonstrating that the fluid acts even in an acid mixture; moreover, this cannot be true in the intestine, where the acidity of the mucus would be sufficient to change the reaction of the juice as it drops from the pancreatic duct. Bernard has succeeded in isolating an albuminous substance in the secretion of the pancreas, to which he attributes its action—it has been called *chylopoine*. It resembles albumen, with the important difference that, after being coagulated by alcohol, it is redissolvable in water, and the solution possesses the same properties as the fluid itself. On the application of heat, the pancreatic juice coagulates *en masse*, and is converted into a concrete matter of very great whiteness, like the white of an egg, there being no liquid left. M. Bernard finds that sulphuric, nitric, concentrated hydrochloric acids, the metallic salts, and alcohol, all precipitate the albumen of the secretion of the pancreas; but the milder acids, the lactic or the acetic, do not. Alkalies redissolve it when precipitated by the acids, or by heat.

The pancreas itself, when saturated with water, imparts its properties to the solution. Another peculiarity of the pancreatic juice, as shown by Bernard, is that, of all liquids of the body, it changes the soonest when exposed to the air, and loses its coagulating properties. This quality is also changed in that drawn from those animals where the operation for abstracting it had produced much disturbance of the nervous system. For that reason, owing to the slight sensibility of his peritoneum, the dog is the best animal to be experimented

* See Mémoire sur la Digestion et l'Assimilation des Matières Albuminoïdes, &c., 1847.

upon. It is important that the juice used should be what is taken immediately after the opening is made, or else after the inflammation of the wound has subsided.

We ought not to omit to state that science already possesses several pathological cases where, from disease of the pancreas (as was proved from the autopsies), fatty substances were not digested.

Nor is fat the only substance acted upon by the secretion of the pancreas. MM. Bouchardat and Sandras* had previously shown its active power of converting cane sugar and amylaceous substances into glucose; it is not necessary for this property that there should be any other ferment than that which acts upon the fat, for, as Bernard has shown, very many animal substances have the same effect.

The *intestinal fluid*, which is composed of a mixture of bile and the pancreatic juice, together with the secretion of Brunner's glands, is shown by M. Bernard to have some very important usages in the process of digestion. It, owing to the presence of the fluid from the pancreas, acts upon fat and upon the saccharine class of aliments. It, moreover, has the property of rendering soluble the azotized matters precipitated by the mixture of the gastric juice and the bile; as thus finally acted upon, they form a substance known as *albuminose*, which differs from ordinary albumen in not being coagulable by heat, but by the mineral salts. Magendie's experiment will be remembered, of introducing into the duodenum through a fistulous opening a piece of sausage, which, on withdrawing the string to which it was attached, he found had been completely digested. Following this up with similar experimental researches, M. Bernard states that any class of aliment thrown immediately into the duodenum will be digested by the intestinal fluid. So, he teaches that the mixture of the chylopoietic fluids found in the intestines is a *universal solvent*, capable of rendering any alimentary substance of any description assimilable! Out of the body, he finds in artificial digestion the same effect. Dr. Dunglison explains Magendie's result, by saying that it was owing to the action of the gastric juice which had passed down into the intestine. Be this as it may, certain it is that the digestion of azotized matter in the stomach is very incomplete, whereas, in the intestinal tube lower down, the process is very active, much more so than that of the stomach.

We have now followed the different varieties of food to where they are ready for absorption. Before this they must be converted, it will be seen, into one of the three substances, *albuminose*, *emulsion of fat*, or *glucose;* for, previous to reaching this stage of digestion, they are not capable of being used as nourishment to form part of the living structure.

In regard to the various views put forth by authors of the process of assimilation, there is, unfortunately, more of plausibility than of certainty. M. Bernard, by instituting some experiments to ascertain the mode of absorption

* Annuaire de Thérapeutique, 1846.

of the different digested substances, has arrived at some curious facts. He finds that neither the albuminose nor the saccharine compounds are found in the contents of the thoracic duct, but "*en masse*" as taken up by the mesenteric veins in the vena portæ; moreover, that these substances, when injected into the superficial veins, pass off by the urine in a very brief space of time; but, if injected into the portal vein, they cannot be recognized in the same secretion. From these premises, he concludes they undergo a physiological modification within the liver, and that it is necessary, for their perfect assimilation, that they should pass through that organ before coming to the lungs. The fatty emulsion, on the contrary, is absorbed only by the lacteals, and is perfectly assimilated when injected into the superficial venous circulation, showing that it does not require the action of the liver. Some have reported having found traces of fat in the vena portæ; but this is an error, as Bernard shows by tying it near the liver, immediately on opening the abdominal parietes, where we have, of course, its proper contents without any of that of the liver, caused by the reflux from the removal of the usual pressure—which contains, as we shall presently show, fatty substances.

The Formation of Fibrin.—M. Bernard thinks that much of the albuminose is transformed at once, as it passes through the liver, into fibrin. His ground for this opinion is that the blood which enters the liver contains in large quantity the digested azotized matter, and but little fibrin, even when the animal has been fed upon meat; whereas, the blood of the hepatic veins contains much fibrin, and but little of the albuminose, and further, that this difference is only observed during digestion.

Let us, in a few words, give a *résumé* of what has been stated in regard to digestion: 1st. The principal use of the saliva is mechanical, the nature of the several secretions composing it being different, and answering different purposes. That of the parotid and sublingual, being clear and limpid, is poured out at the moment of, and assists, mastication; that of the submaxillary, being thick and glutinous, is secreted at the time of deglutition, for which it is more particularly adapted: out of the body, if permitted to remain long enough in contact with the amylaceous class of food, it converts them into dextrine, grape sugar, and lactic and butyric acids; but ordinarily, in digestion, it effects but little transformation, owing to the time of contact not being sufficient. It has no effect upon any other food, except that of softening the bulk, from the imbibition of its watery portion. The active animal principle found in the saliva is not a peculiar substance which deserves the name of diastase, as many other organic substances have the same digestive properties. 2dly. Amylaceous substances are generally digested by the intestinal fluid, by being converted into glucose. 3dly. Nitrogenized food is susceptible of being rendered assimilable by the action of the gastric juice alone, when it is sufficiently prolonged, but generally it is only partially digested by it, and has afterwards to be submitted to the influence of the bile and pancreatic juice; the bile renders the mass indestructible, and preventing fermentation, imputrescible, thus

regulating the formation of gas in the intestinal tube. 4thly. The pepsin is the active principle of the gastric juice—lactic acid its only free acid—and the secretion is under the influence of the nervous system. 5thly. Fatty substances are digested only by the pancreatic juice, which converts them into an absorbable emulsion. 6thly. The intestinal fluid is of itself a perfect solvent for all classes of food. In this, we see the beautiful provision of nature, to secure the proper digestion of food by furnishing several liquids to effect the same purpose. Thus, although the saliva and the gastric juice are capable of acting efficiently, yet ordinarily the food passes too rapidly from the mouth to the small intestines for the necessary transformation to take place, and a compound liquid is found in the duodenum, ready to supply the deficient action of the others. The nitrogenized portion of the aliment, being the most important, as the most rich in nutriment, it is necessary should come in contact with all these fluids. Fatty matters are permitted to pass untouched, until the others have been acted upon; and it is proved that what is commonly known as chyle is not, as is generally believed, the nutritive portion of the chyme, but is formed exclusively of digested fat.

Our space will not permit us to enlarge upon the importance of these discoveries, as showing that nature has provided a distinct place for the digestion of each kind of food, or of their value in the treatment of the various forms of indigestion passing under the name of dyspepsia; not only can the seat of disease be detected, but the case may be judiciously managed, often solely by the regulation of the diet.

The Secretion of Fat.—The general impression in regard to the use of the fatty portions of the aliments has been that they, in part, pass at once to the lungs, where they furnish material for combustion, and thus contribute to the formation of animal heat; and that the other portion is deposited in the form of adipose tissue in the different structures of the body, not only for the mechanical purpose of pads to facilitate the motion of the joints and of the muscles, but also as a protection against cold, and as a reserved supply of fuel to the lungs. It has been for years a difficult problem for physiologists to solve, from what source was derived the immense amount of fat sometimes found in the tissues. That the digestive powers could only touch a certain quantity of what was put into the stomach was made evident by Magendie's experiments; for fat, over a certain amount, was not acted upon in the intestines, and even all which was taken up by the lacteals could not be appropriated by the system. The ducks fed exclusively upon lard became perfectly saturated with it, and it exuded from the end of their feathers; and M. Boussingault found but little difference in the amount of oily matter in the blood of pigeons and ducks, kept without food for some time, and in that of others stuffed with fat. That fat is employed as one way of passing off the hydro-carbon from the system, as effete matter, is evident, from the means ordinarily employed to fatten animals. One mode is to prevent the lungs from excreting so much by keeping the animals within a coop, the absence of

exercise lessening the demand of the respiratory apparatus for carbon; indeed, we are all familiar with the fact that bodily inactivity with a full diet produces obesity, from the simple fact that less of the tissues are consumed. Light, too, by the usual chemical changes, diminishes the quantity of fat; therefore, it is excluded by the Italians from the rooms where they fatten their birds. The exclusion of light has the further effect of removing from the view those objects which, by arousing the attention and the anxieties, interfere with the activity of digestion. We thus know of means of retaining within the system fat which is formed; but the question arises, how is it produced in such quantities, when not contained in the alimentary material? The fat contained in the herbs given to a cow cannot account for the amount of butter found in her milk; nor can the hay, on which cattle are fed to prepare them for market, supply all their fat. M. Persoz found, in fattening geese, that the oleaginous matter formed in their bodies was more than double the amount which could be extracted from the maize consumed. In the interesting volume on "Corpulence," recently published by Dr. Chambers, of London, it is maintained that the additional supply of fat, over and above what is taken ready made into the stomach, is obtained by the conversion of other substances into it. He adopts Liebig's theory, that fat can be formed from a modification of the principles of terniary composition, which enter in so large a proportion into the food of herbivorous animals; thus, sugar, gum, starch, &c., are transformed into fat by parting with a portion of their oxygen. Dr. Chambers supposes that these substances undergo fermentation in the intestine, by the action of some of the secretions, and are thus converted into fat before they are absorbed. But it appears that it is not only when fed upon such substances that animals fatten, for M. Boussingault found that geese fed upon nitrogenized matter, such as albumen and pure casein, had more fat upon them than could have been taken into their stomachs. This leads Dr. Chambers to suppose, as did Dr. Combe,* that not only those proximate principles which contain oxygen and hydrogen in the proportions to form water can be converted into fat, but that complex nitrogenized compounds are capable of the same transformation into a non-nitrogenized matter. Such hypotheses, perfectly destitute as they are of proof, cannot be relied upon; but the fact was, the phenomena had to be explained. Now, if fat could be thus formed from the first class by its yielding some of its oxygen, and from the second by its being freed from all its nitrogen, where does the metamorphosis take place? To M. Bernard's mind, even Liebig's theory was far from being satisfactory; he desired some evidence derived from observing the operations of the functions of the living subject; he did not denounce it as absurd, but as unestablished by facts. Dr. Chambers supposes the change takes place in the intestine. Bernard, by the examination of herbivorous animals, which had been fed upon substances which contained no oleaginous principle, found that they had

* See Physiology of Digestion, &c., by Andrew Combe, M. D., Edinburgh, 1849.

no white lacteals; the absorbents from the intestinal tube contained only a clear transparent fluid, with no trace of fat. On extending his researches, he perceived that the absorbent vessels, commonly called lacteals, were different in the herbivorous from what they were in the carnivorous, and that the only way to have either the white milky appearance, or to find the fatty emulsion in the absorbents, was by administering oleaginous matter by the stomach. Thus was refuted Dr. Chambers' view before it was advanced. Where else could this important change take place, if not in the process of digestion?

M. Bernard had already proved, as shown in our first communication, by his discovery of the fabrication of grape or diabetic sugar by the liver, that the principle, heretofore acknowledged in physiology, that the animal system must derive from alimentary substances each and every constituent, was false. Not being able to account in any satisfactory way for the accumulation of fat in the tissues, he determined to see if it too could possibly be fabricated by any organ. His attention had been drawn to the liver from two or three facts recognized in pathology; in the first place, there was a disease known as fatty degeneration of that organ, found in persons suffering with phthisis, and in those habituated to the excessive use of alcoholic liquors; in both of which it was plain the liver had extra duty to perform. And again, why was it that, on keeping geese from consuming their fatty tissues, the amount accumulated should be so much greater in the liver than in the other organs, thus preparing the delicacy of the "foie gras?" There was still another fact which induced him to investigate particularly the action of the liver. Previous experimenters had found fatty matter in the portal vein, as he himself had in making his researches on the absorption of the different alimentary materials; but subsequently, on tying the portal vein near the liver, immediately on cutting through the abdominal parietes, he found there no trace of fat, though the experiment was performed after the dog had taken a meal exclusively of oleaginous material, from which it was evident that the fat he had there found in his previous experiments could not have been derived from the absorption of what had been digested in the duodenum. Collecting, therefore, the blood which entered the liver, he found no fat except when there had been a reflux of the fluid of the organ itself; but, on testing that which flowed from it in the hepatic veins, he there found it in abundance. After satisfying himself by repeated experiments that this was the case, he concluded that what was there found must have come from the liver, and have been formed there, as was the sugar. Astonishing as this may appear, that any one organ in the body should have the power of producing two elements so necessary for nutrition, yet the presence of fat in the hepatic vein, and nowhere else in the venous system, except in the subclavian below the insertion of the thoracic duct, cannot be accounted for in any other way; and, as we shall presently see, there are other facts confirmatory. Whether or not it is in this organ that the transformation supposed by Liebig takes place, M. Bernard

does not decide; but clear it is, he maintains, that there are two sources of fat in the system, even as there are of sugar—one from alimentary matters, and the other from the liver.

By a simple experiment, M. Bernard proves that the moment of digestion, when the liver is congested and in the active performance of its various duties, is the time selected by nature for this its newly-discovered office. After giving a dog a full meal of vegetable food, from which no fat could be extracted, he cut into the abdominal parietes, and, after putting a ligature around the portal vein, to prevent a regurgitation, he examined the blood of this vein, and found that there was no trace of fat, whereas that from the hepatic did contain some, and a decoction of a piece of the liver itself was cloudy, fat floating on the surface, which could be separated by ether. A piece of a liver of another dog, which had been expressly kept fasting for some time, was boiled, and the liquid was free from fat globules. In the liver of the rabbit and of other herbivorous animals, there is constantly more or less of fat, owing to the slowness of the process of digestion in them.

Hepatic fat differs somewhat from the other varieties; it is melted at a lower temperature; it is united to an organic matter from which it is with difficulty separated; it differs from the fat emulsioned by the pancreatic juice. It resembles most the fatty principle of butter. Sometimes it is found in great abundance, particularly in females during the period of lactation. It is then also discoverable in the blood, which may be seen by the whitish colour of the serum; or it can be extracted by ether. This fat corresponds to that formed in the liver; and M. Bernard asks the question whether this may not be the origin of the fat of milk which is secreted from the blood by the mammary gland. On pursuing his researches, Bernard finds that the blood of the arteries, coming from the lungs through the heart, contains nearly as much fatty matter as that of the pulmonary arteries, and that such is the case throughout the arterial circulation; while, on the contrary, in ordinary venous blood there can scarcely be discovered a trace of it. From this it is concluded that, as it disappears in the general capillary system, it is deposited as lard, suet, &c., in the cellular tissue. It doubtless serves, as does the hepatic sugar, the purposes of nutrition; but the latter is consumed in the lungs, whereas this is accumulated in deposits, as seen in hibernating animals. Further confirmation of the production of fat by the liver may be drawn from M. Bernard's experiments upon the influence of the nervous system over the quantity detected in the organ itself and in the blood leaving it. Any resection of the pneumogastric, or a violent shock to any part or to the whole of the nervous centres at once, influences its secretion. There appears to be a singular antagonism between this production and that of sugar, when the medulla oblongata is punctured; the fat diminishes in quantity as the sugar increases. In one experiment the arrest of the production of fat in the liver continued for three hours after the puncture, though the animal was in full digestion. But Bernard had, very *à propos*, an opportunity of examining the liver of a

diabetic patient who had died suddenly, shortly after a full meal. He found no less than seven grammes of sugar in it; but neither by ether nor alcohol could he discover traces of fat—thus verifying in the human subject the antagonism he had found to exist between the two secretions in animals rendered diabetic. M. Persoz, in his experiments previously alluded to, in fattening geese, found a large quantity of fat, not only in arterial blood, but in all the venous trunks, and in many parts of the body where, in a state of health, it cannot be discovered; the quantity of fat in the "foie gras," which far exceeded that in any other organ, rendered it milky white: this pathological condition being caused by the production in such quantities that it could not be consumed by the formation of carbonic acid and water.

There are other pathological facts which confirm this physiological discovery. Several authors, particularly Dr. Johnson, have mentioned a disease characterized by the presence of fatty matter in the urine, which, from its whitish colour, has been named *chylous urine.* M. Rayer mentions* several instances of this symptom occurring in patients where blood drawn from the basilic presented the same chylous appearance; while, ordinarily, as we before stated, blood drawn from the veins, except between the liver and the heart and below the insertion of the thoracic duct, contains no fat. Bernard exhibited to his class a specimen of urine voided that morning, which presented a cloudy chylous aspect, and from which, on treating it with ether, fat was extracted, resembling butter, and not distinguishable from the fatty matter found in the liver. M. Bizio, a chemist of considerable distinction, has reported some cases of chylous urine, in which the fatty principle resembled also that found in milk. Whence, asks M. Bernard, is this matter, found in the urinary secretion, derived? Does it not come from the liver, which, owing to some derangement of its functions, secretes more than can be consumed, and thus the surplus passes off in the urinary secretion, the receptacle of all useless material? This disease Bernard thinks may be appropriately named *a fatty diabetes.*

M. Bernard drew attention to a memoir to the Institute, by M. Guillot, in which he states that in phthisis, pneumonia, and indeed in all diseases where there exists an interruption of the normal pulmonary circulation, there is found in the lungs a quantity of fat, not discoverable in other diseases. This he thought might be explained by the arrest, within the pulmonary tissue, of the fat coming from the liver and through the subclavian.

Let us, in a few words, sum up M. Bernard's conclusions in regard to the formation by the liver, during the time of digestion, of these three substances, sugar, fibrin, and fat, which correspond to three nutritive alimentary materials. It has long been admitted that the liver, by the secretion of bile, assists the lungs in the elimination of carbon from the system. Comparative anatomy demonstrates this by showing the antagonistic activity of its functions at the different ages and in the several degrees in the animal scale. In

* Maladies des Reins.

a somewhat different way than the lungs, the liver is a *depurative organ*. But Bernard has shown us that the liver, by these secretions, has also other functions. These new products contribute to establish the equilibrium in the blood, for the liver, no matter what the aliment is, transforms it into material fit for nutrition, and thus the composition of the vital fluid remains unchanged; the sugar, fat, and fibrin thus furnished repairing to the blood the loss of these substances continually given off. The liver has thus the office of preserving the blood in a state of health, and in a chemical point of view is the organ of *sanguification*. That it is also the organ for regulating the equilibrium of the circulation is evident from M. B.'s results in experimenting upon different animals in regard to the quantity of each of these productions, which he found was furnished severally in the proportion needed. That is to say, in carnivorous animals there is less fat secreted, because there is more taken already formed as aliment; in the herbivorous class, where there is much saccharine matter consumed, there is less sugar fabricated; and the less fibrin the stomach digests the more the liver contains. Consequently, in man, where the diet is so variable, his blood will receive that which it has most want of, and *vice versâ*. Thus the liver has these three important functions, *depuration*, *sanguification*, and *equilibrium*. M. Bernard alluded to the fact, singular enough, that three of the most troublesome diseases man is heir to consist of an excess of three of the products of digestion, of albumen in albuminuria, of fat in chylous urine, and of sugar in diabetes.

We ought not to omit to notice, in conclusion, that M. Bernard, on inserting a thermometer into the different veins, found that the temperature of the hepatic was two degrees higher than that of the portal, owing, he suggested, to the active and abundant circulation of the liver; and, strange to say, that the blood of the pulmonary artery was not of greater temperature than that of the pulmonary and other veins. What light this may throw upon the formation of animal heat future experiments may develop.

That some of your readers will object to the conclusiveness of M. Bernard's doctrines, we doubt not; but we would remind them that it is scarcely fair to sit with folded arms, and reason about the probability of this or that physiological fact, without fortifying their opinions by experimental researches. In giving in detail the experiments of this distinguished physiologist, we have a double object in view, not only because we think they would render the results clearer and more satisfactory, but also that others may verify or disprove them. It is in this way that Bernard has refuted the doctrines of those who preceded him; and he wishes to be so treated himself. He asks but for this, and it is his right. Theories and theoretical reasonings have been the bane of our science, and what we want in future is something more satisfactory and more enduring—facts, carefully noted and the statistical results given, in all branches of medicine. Bernard has certainly put forward many entirely new views, but we must leave the reader to judge whether or not he has substantiated them by experimental proof.

Baltimore, *April*, 1851.

ART. V.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

May 12. *Hydrocephalus.*—Dr. COALE reported the case of A. H., born January 14th, 1849. Parents healthy; first child. Dr. C. was called to see her when she was two weeks old; found her labouring under cerebral symptoms, which soon resolved themselves into undeniable signs of water on the brain. She was treated with small doses of calomel, and afterwards with hydriodate of potassa, with apparent benefit at first. The head, however, steadily increased in size. The general health was good except when disturbed by teething—at which time she had occasional spasms, never amounting, however, to a general convulsion.

	Measurement of head.	Inches.		Inches.
Sept. 12th, 1849.	Over crown from meatus to meatus	12½	Round	18½
Nov. 1st,	" " " " " "	13½	"	19½
" 28th,	" " " " " "	14	"	20
May 10th, 1851.	" " " " " "	17¾	"	23½

The family having moved out of town in Aug. 1850, Dr. C. did not see the child after that except at rare periods. The last time was May 10th, 1851. Her height is now thirty-one inches; she lies on her back; is blind, but hears, though imperfectly. The pressure above has forced down the vault of the orbit so that the eyeball seems lower, and more covered by the lower than the upper lid; much of the white above the cornea being exposed, whilst the cornea is half covered by the lower lid. The mouth contains the usual number of teeth. Motion of limbs perfect, but feeble, except of right arm, which is paralyzed almost entirely. Fond of throwing the left hand about, and with it occasionally feels the right arm, and resists any attempts to meddle with it. Extremities cold, making it necessary to keep a good fire in the room day and night through the winter. Never cries or frets. Takes, three times a day, ten ounces of milk, sucked from a bottle. Bowels open with regularity once a day.

The child died two months and a half after this, without any remarkable change.

May 26. *Otorrhœa of Twenty Years' Duration, terminating fatally from Hemorrhage.* Case furnished by Dr. F. H. GRAY. Dr. PARKMAN showed the specimen.—F. C., twenty-one years of age, of scrofulous habit, though having a good share of health, had been troubled with a purulent discharge of fetid character from the right ear, from infancy.

On the evening of April 10th, 1851, patient rode several miles on horseback, and on the following morning complained of general uneasiness, though sufficiently able to attend to his ordinary business. On the morning of the 15th,

severe pain commenced in right ear, which continued for three successive days, at the end of which period, copious and offensive purulent discharges found their way into the meatus auditorius and likewise into the mouth. Patient was greatly relieved by the discharges, and was able to walk and ride out, though he still suffered from headache, until the morning of the 21st, when some coagulated blood was ejected from the mouth. Copious hemorrhage took place from the ear and into the mouth at intervals, varying in quantity from ℥iv to Oj, during the next twenty hours, when he quietly laid himself back, and expired. During the whole illness, there was an almost daily occurrence of vomiting, with the pulse unusually slow, possibly to be referred to the influence of narcotics.

At the autopsy, there was found a slight bloody effusion in the lower surface of the cerebellum, proceeding from a small gangrenous opening in the posterior surface of the right lateral sinus, just before it terminates in the jugular vein; the sinus was also ulcerated on the side next the petrous portion of the temporal bone, and blood was extensively effused into the cavity of the ear and into the cellular tissue behind the pharynx. The petrous portion of the temporal bone, sawn through and exhibited, showed the cavity of the ear deeply affected with caries, and undoubtedly the inflammation had spread from this point, involving the sinus. The specimen is in the Society's Cabinet.

June 9. *Ovarian Tumour.* Dr. Chas. E. Ware reported the case.—He first saw the patient (a single woman) June 29th, 1850. She was then fifty-nine years of age, and had perceived the enlargement of the abdomen for about a year. It had occasioned no inconvenience beyond a little embarrassment in walking. The swelling was occasioned by a tumour, hard and elastic, divided into three lobes. The central lobe appeared to originate from the fundus of the uterus, having the bladder directly between it and the pubis, and extending above the umbilicus. To the left of these tumours, between the crest of the ilium and the false ribs, there was another tumour, loose and flaccid like a half empty sac. Dr. Ware was called to see her on account of vomiting, and some disturbance of the bowels occasioned by the interference of the tumour. She was speedily relieved. She had similar attacks in July, September, and in November, at which latter time there was great fullness of the abdomen, and distinct ascites. She had, during this time, been taking the oxymuriate of mercury, and afterwards hydriodate of potash, without any distinct advantage.

In January, 1851, she had another attack of vomiting. At this time, the abdomen had very much diminished in size, and there was no appearance of fluid in the peritoneum. In the right groin, there was a group of enlarged inguinal glands; some of them as large as a hazelnut. No tenderness about them, nor signs of inflammation. At the time of her death, these had entirely disappeared. The tumours remained about the same, except that

they were more distinct on account of the general emaciation. Up to this time, in the interval of her attacks of vomiting, or of diarrhœa, which would continue from a week to a fortnight, she was able to keep about. After this attack, she rarely left the house, and was often confined to her bed. She slowly wasted in strength and flesh, was able to bear little food, and had more frequent attacks of vomiting.

March 31*st.* She was seized with griping pain in the bowels, and some looseness. She took to her bed, and did not again leave it. Three weeks afterwards a more severe attack occurred, under which she sank, June 4th.

Autopsy.—Very great emaciation. No fluid in the peritoneum. The inguinal glands entirely subsided. The tumour arose from the left ovary. It had only one very slight adhesion, and that to the omentum. Although forming one mass, it was lobulated into four or five parts. One of these was a cyst large enough to contain a teacup of fluid. The fluid was about the colour of strong coffee. Another small cyst, about the size of an English walnut, contained a soft paste of a dark bistre colour, which, under the microscope, presented only brown granules and granular corpuscles. The other lobes, which constituted the mass, and would weigh four or five pounds, were solid, and had much the appearance of carcinoma. There were several small cavities in them containing a limpid fluid. The whole mass had a somewhat œdematous appearance. Under the microscope it presented cells, caudate, irregular, and nucleated, but no granular corpuscles. There was a distinct stroma similar to that of carcinoma. At the lower part of the small intestines, the membrane was intensely red, rough, and at points ulcerated.

There was no disease in any of the other organs.

June 23*d.*—Dr. Shattuck, Jr., reported the following cases:—

Chronic Dysentery, Diarrhœa; less after taking Oil of Turpentine—Peritonitis not revealed by Symptoms—Extensive Ulceration of the Mucous Membrane of the Large Intestine.—B. P., fifty-five years of age, born in Genoa, had been in America two years—during the last of which, had lived in Boston. He entered the Massachusetts General Hospital April 19, 1851, reporting himself as having suffered for two months from chronic diarrhœa and abdominal pain. He knew of no cause for his disease; of dark complexion, emaciated; six or eight yellowish stools in twenty-four hours; tenesmus; abdomen flat, rigid, not tender on pressure; appetite small; no fever. He was put upon a diet of boiled milk and lime-water, thickened with flour, or pounded cracker; took chalk mixture and paregoric, tannic acid and powdered opium; up to the 30th April, there had been no improvement. He now took half an ounce of the mucilage of gum Arabic with half a drachm of the spirits of turpentine, and fifteen drops of the tincture of opium, three times a-day. He had an ounce of cherry brandy in the morning; chicken and maccaroni for his dinner. May 17th, he was more comfortable; less abdominal pain; more appe-

tite; two or three dejections every day. He took, for one day, three doses of the tincture of nux vomica, gtts. viii; had numerous dejections, with pain; the former medicine was resumed, and on the 21st he had but two dejections. He gradually lost strength, so as not to be able to walk about the ward; the 27th, he was in bed; no abdominal pain; no tenderness of abdomen on pressure. The 28th, the pulse was 106, small, feeble; prostration; no stool in last twenty hours; died that night.

At the autopsy, a half pint of pus was discovered in the abdominal cavity, the intestines being glued together by lymph, and their peritoneal coat and that of the cavity finely injected; mucous membrane of small intestines and stomach quite healthy. In large intestines, ulcerations commenced about two inches from the ileo-cœcal valve, small, round, numerous, several extending to peritoneal coat; six inches from the valve, three parallel strips of ulceration, three inches in length by three or four lines in breadth, extending to the submucous cellular tissue. Numerous small ulcerations in sigmoid flexure.

Chronic Dysentery—Sudden Death—Small Effusion of Blood between Dura Mater and Arachnoid—Peculiar Injection and Ulceration of Large Intestine.—Joachim, a Portuguese seaman, twenty-eight years of age, was taken with diarrhœa in a voyage from Batavia to Boston, and had been ill about ten weeks, Dec. 17th, when he arrived in this country. He ate indiscriminately; took no care of himself; continued to suffer from abdominal pain, diarrhœa, loss of flesh and strength, and entered the hospital April 18th. He was put on a diet of lime-water and milk, and pounded cracker; took astringents and opiates for several days. He continued to have seven or eight loose yellowish discharges in the twenty-four hours; occasionally, blood and mucus. He was then put on meat and rice, brandy and water, taking occasionally powdered opium or laudanum. Small epistaxis on the 21st; on the 29th, had a faint turn from which he recovered; ate his dinner with usual relish; died suddenly about five o'clock in the evening.

At the autopsy, a patch of effused blood three inches in diameter, rather more than a drachm in quantity, was found anteriorly on the right side between the dura mater and the arachnoid. The brain generally soft. The mucous membrane of stomach and small intestines pale, of sufficient consistence. The liver was healthy; its weight three pounds and a half. Injection in spots under serous and mucous membranes of large intestines, some of a bluish colour, some of a bright red colour, not corresponding to each other. Ulcerations small, circular; in some of these, patches of mucous membrane, extending to the cellular tissue. Mucous membrane of large intestines generally soft. Intestinal tube containing less of its secretions and fecal matter than usual, there having been free operations about the time of death.

Chronic Dysentery prevented by Oil of Turpentine—Strangury—Recovery.—Mary Beasly, a spare woman, muscular system sufficiently developed, healthy;

had had no long illness; had one attack of diarrhœa, which lasted about three weeks, in 1849. She came over to this country in August, 1850; suffered from sea-sickness during the voyage, which otherwise was pleasant; no fever or diarrhœa amongst fellow-passengers. She arrived in New York, and went immediately to live with her son; working moderately. She was taken with abdominal pain, and had six or eight loose stools in the twenty-four hours, with, occasionally, slime and blood, about a month after her arrival. She took pills, which controlled her discharges for a day or two at a time; occasionally she would have none. She entered the hospital June 10th, having had six or eight discharges a day for the last two weeks; pain; little or no appetite; tongue not remarkable; pulse 84; skin not remarkable; abdomen not full, tender on pressure. She took a pill with two grains of tannic acid and half a grain of opium twice a-day; five or six stools, with some blood and mucus. On the 11th, she took half an ounce of castor oil in a cup of flax-seed tea, which was followed that day by two doses, at regular intervals, of half an ounce each of the mucilage of gum Arabic, half a drachm of the spirits of turpentine, and six drops of the elixir of opium. She had three dejections on that day, none on the 12th; and, on the 14th, in the morning, she was attacked suddenly by severe abdominal pain. The house physician gave her a grain of opium and thirty drops of laudanum in a starch enema. Micturition bloody and painful. She took opiates and mucilages; was better on the 17th, well on the 22d, and left on the 30th, perfectly well in every respect, gaining flesh and strength.

These were the only cases of chronic dysentery in the medical wards of the Massachusetts General Hospital during the months of March, April, May, and June. There was one case of acute dysentery during the same period. Of one hundred and five cases of acute dysentery, which were received at the hospital during a period of twenty-four years, but three cases occurred in the spring months. Of nineteen cases of chronic dysentery, during the same period of years, there were also three in the spring. The peculiarities of these cases are, perhaps, sufficiently obvious without any farther comment.

June 23. Poisoning from Eating of Strawberries—Eczema. Case reported by Dr. Alley.—A gentleman ate freely of strawberries at noon. In the course of half an hour he was seized with nausea, which did not terminate in vomiting, but disappeared in about an hour. Towards evening he perceived a slight irritation upon his chin, accompanied with redness and itching. The next morning the whole of the right side of the face was swollen, and during the day the eruption extended across the forehead and over the left side of the face, and the swelling increased so as nearly to close the eyes. The same day, the eruption appeared on the anterior portion of the chest, on the scrotum, and extended down the inner side of the thighs. It was characterized by crops of minute vesicles, thickly crowded together; and upon the chin, and over the upper lip, appeared an exudation of yellow serum. The

constitutional symptoms were slight, the patient complaining somewhat of pain across the forehead; restlessness at night. Pulse accelerated; complained of no pain in abdomen. Patient reports that, six years ago, a similar attack followed the eating of strawberries, but did not appear to be so directly caused by them. Has eaten them occasionally since, but not without some feelings of discomfort. The bowels were freely opened by saline cathartics, and a light diet ordered. In the course of five days, the swelling subsided, redness disappeared, and the skin was rapidly assuming a healthy appearance.

June 23.—*Severe Urticaria from Hyoscyamus.* Case reported by Dr. Cabot.—Mr. B. was suffering severe pain in abdomen, and as it was deemed important that the medicine which he had taken (castor oil) should be allowed to operate, he was directed to take a teaspoonful of tinct. hyoscyami every hour until he had taken three doses—unless he was relieved sooner from his pain. Soon after the first dose, he felt his lips swell somewhat, and became drowsy. After the second dose, passed a large quantity of flatus. About ten minutes after the third dose, his nose swelled very much, which swelling extended all over his face and body, growing less severe below his waist; this was accompanied with a prickly sensation and itching. The skin of the face was very red, shining, and hard; the eyes were shut; there was no interval seen until below middle of body, where bunches and irregular patches appeared scattered over the surface, and some smaller ones appeared like enlarged papillæ of the skin. He could hardly utter a word, owing to a "stiffness of the tongue and lips," as he expressed it; what he did say was with a thick, blundering manner, like that of a drunken man: his mind appeared perfectly clear. The eruption began to subside in about an hour and a half from the time the last dose was taken, and had almost or quite disappeared the next morning.

June 27.—*Gangrene of Appendix Vermiformis.* Dr. J. M. Warren related the case.—The patient was a gentleman forty years of age. He had always been subject to what are called bilious complaints. About four years since, he was confined for some weeks to the house with a severe attack of colic, attended with constipation; and at this time Dr. W. observed a small hard tumour, tender on pressure, in the right lumbar region. Two years ago last October, he had a second attack, in which the pain was excruciating, and required the constant inhalation of ether and use of the opiates to relieve him. At this time there was a diffuse swelling in the right iliac and lumbar regions, quite hard and very tender. Under the use of leeches, and by inducing a slight mercurial action on the system, he slowly recovered. At this time, Dr. W., fearing some organic complaint, not only from the swelling, but from his great susceptibility to cold and disturbed digestion, advised him to relinquish business, at least so far as to allow him to have his mind perfectly free from any care, and to give him an opportunity of paying particular attention to his

health. This he did, and has been quite free from any trouble until the final attack. This came on after exposure to cold and some irregularity in diet. The pain, for a day or two, amounted merely to a feeling of uneasiness, but gradually became excessive. A tumour could be distinguished, at this period, in the right iliac fossa, the size and length of the forefinger; was quite hard, and could be almost seized, through the integuments, and lifted up. The pain and tenderness were so great as to require the overpowering use of opiates, administered by enema. On the third day there was a slight evacuation from the bowels by means of an enema; but the patient shortly after fell into a state of collapse, and died on the third day after the violent seizure. For the last twenty-four hours there was the most distressing hiccough. On examination after death, extensive peritoneal inflammation was found to exist. There was very great induration of the omentum, with firm adhesions, arising apparently from the previous attack, two years before. Some purulent matter escaped from the cavity of the pelvis. The appendix vermiformis was found gangrenous and perforated at both ends, and in its central portion was contained a mass of indurated feces the size of a prune stone. On section of this substance, no nucleus could be discovered.

Amputation at the Shoulder-joint. Dr. J. M. Warren.—The patient was thirty-two years of age, and was brought to the Massachusetts General Hospital on the 16th May, his arm having been drawn in between the cog-wheels of powerful machinery used for pressing hemp, two hours before—the limb passed in up to the shoulder. The bones of the hand were found to be crushed, the radius and ulna not broken; the lower two-thirds of the humerus communicated, and an opening over the brachial artery, two inches below the axilla, allowed the finger to be passed in up to the joint. The limb was removed by an anterior and posterior flap. Some difficulty was experienced in disarticulating the head of the humerus, from the fact that the bone being broken below, no purchase could be had by which the head could be lifted from its socket. A powerful pair of forceps had been provided for this purpose, but the displacement was effected without having recourse to them. The patient has done well. Dr. W. stated that the case was interesting, as being the first case of amputation at the shoulder-joint that had ever occurred at the Massachusetts General Hospital. The patient, whose case was reported to the Society in January, when the limb had been removed at the shoulder-joint for malignant disease, was now perfectly recovered, and had resumed his occupations.

July 14.—*Traumatic Injuries of the Iris.*—Dr. Williams reported two cases where considerable violence done to the iris had been followed by a very trifling amount of inflammation.

The first was a case where an operation for artificial pupil had been performed upon the right eye of a farmer aged sixty-one. Inflammation of the eye occurred twenty-seven years since, producing extensive adhesions of the

iris to the cornea, and a dense leucoma which covered the lower half of the cornea and the small portion of the pupil which remained unadherent. The other eye was lost last March. In performing the operation, a portion of iris was drawn out through a wound of the cornea, and a sufficient portion excised to form a pupil of rather more than the average size, towards the outer canthus. This was accomplished with some difficulty, the manœuvres being impeded by the extensive adhesions. Yet no inflammation followed. The patient might have gone out the next day, except that prudence forbade his doing so, and he actually did go out on the fifth day after the operation, seeing well enough to guide himself. His sight continued to improve, and he returned home to the country on the twelfth day.

The second case was that of a young man of twenty who was wounded by an explosion of a bottle of "mineral water." The fragment of glass divided the cornea horizontally in its whole extent, at the level of the lower edge of the pupil, and the wound extended so far into the sclerotica as to make its whole length half an inch. The iris protruded through the whole of this long wound, the pupil being deformed, and the entire substance of the iris put upon the stretch. This long hernia of the iris was greatly distended by aqueous humour accumulated behind it, and, it being impossible to effect its reduction, it was punctured with a cataract needle. The aqueous humour escaped in a jet, to the distance of three feet, and the tumour instantly collapsed. It became, however, re-distended on subsequent days, and the puncture was repeated four or five times. This proving ineffectual, a portion of iris was excised at the centre of the ridge, and from this time it remained collapsed until union of the edges of the wound was accomplished, the iris forming a portion of the cicatrix. No increase of the ocular vascularity followed these operations; but, on the contrary, the patient was relieved from the sensations of pain and tension he had before experienced. He promptly recovered, and a fortnight after the accident, there was no appearance of commencing traumatic cataract, but vision continued good. The glass must have struck obliquely, and glanced off, without penetrating the globe.

July 14.—*Syphilitic Ulcer on Glans Penis, and Syphilitic Tubercular Eruption on Skin, fifteen years after exposure.*—Dr. DURKEE exhibited a patient, a married man, who consulted him about the first of May last, on account of an ulcer on the glans penis. At that time the ulcer encircled the orifice of the urethra, and was about the size of half a dime. Three weeks before calling upon Dr. D., the patient discovered a small pimple close to the lower edge or border of the orifice, and made known his trouble to one of his neighbours, who attempted to cure it by applying a decoction of various roots and herbs, and an ointment of resin and hog's lard, &c. The pimple soon became an ulcer, and the inguinal glands on both sides became swollen. Patient states that fifteen years ago he contracted gonorrhœa, which yielded to treatment in a few weeks; that he never had been exposed except at the time above men-

tioned; and that he never had chancres externally. Although the ulcer was of a suspicious character, yet it was difficult to judge how much its appearance might have been modified by the applications which had been resorted to. Patient was put upon the use of iodide of potass in syrup of sarsaparilla, fifteen grains daily, for two weeks, and then increased the quantity to twenty-two grains daily for three weeks longer. It was then discontinued in consequence of a minute papular eruption with slight erythema, which it had brought out upon the face, chest, &c. This eruption faded away in a few days, and was followed by genuine syphilitic tubercles sparsely disseminated upon the face, head, back of the neck, and other parts, where they have remained with characteristic persistence, and without manifesting any disposition to ulcerate, up to the present time. Upon laying aside the iodide of potass, patient was put upon the internal use of dilute nitric acid, and lastly upon mercurials. Topical remedies, black wash, aromatic wine, nitric acid two drops to the ounce of water, cold water dressing, saturated tincture of iodine, saturated solution nitrate of silver, &c.

Patient was a sort of country trader, and was engaged in various speculations which he did not choose to entrust to any one else; it was impossible to prevail upon him to keep quiet for any length of time, and the desired effects of the remedies were thus in a great measure defeated. On two or three occasions, he took board in the city for six or eight days, during which time some amendment would take place. He would take courage from this, and insist that he was well enough to go home. Complained somewhat of Boston charges, and said that he would take the responsibility of the case upon himself; and that, if it did not go "on to his mind," he would take the blame. In this way the case progressed from bad to worse. The ulcer spread over a large portion of the glans penis, which became a good deal swollen, and the use of the bougie was required. The cervical glands became enlarged, fauces inflamed, deglutition painful, nocturnal pains in lower extremities, and the patient had but little sleep. He at length got thoroughly frightened, relinquished business, came to the city under the apprehension that his disease was of a malignant character, and that he would lose a portion of the penis if he did not get help soon. He now expressed a willingness to remain in the city, without regard to expense, as long as might be necessary. During the last few days, a favourable change has again taken place. His case excited particular interest from the fact that so long a time had elapsed since the virus was imbibed into the system.

ART. VI.—*The Microscope, and Renal Affections; and particularly that condition of the Kidney known as Bright's Disease.* By W. J. BURNETT, M. D.

WITHIN a comparatively recent period, medical science has gained two powerful auxiliaries; and which have contributed to a more rapid, and at the same time a surer, progress in its various departments than at any previous time. These are, Organic Chemistry and Microscopy; the one seizing hold of matter as to its constituent, the other as to its anatomical, elements. And, although for the most part they have been obliged to be pursued separately, yet, with a good fortune for science, their results have generally closely corresponded. From organic chemistry, undoubtedly, have the most progress and the greatest benefits been derived. But this is due to its having had the most numerous disciples, and the means by which it has been pursued having been more perfect than those of microscopy. This last seems to have sadly suffered from bad instruments as well as from bad observers. Its results, therefore, until quite lately, have been less decided than those from chemical analysis. But now, in the days of better optics, this difficulty is not to be tolerated; and in discrepant results we must shift their causes from the instrument to the observer. It is mainly due to microscopy that physiology and pathology have lately become very great mutual aids. As I have said in another place, pathology seems to be but an errant physiology, and often where the typical characters of function are very difficult to be traced in the latter, they peer out in the abnormal relations of the former. The microscope, in elucidating the ultimata of anatomy, does not grasp physiological action; but, by showing exactly what the material agents of a function are, we can comprehend all that should be expressed by that word. Beyond this we cannot go at present, and perhaps never will. Secretion, that corner-stone of organic life, is now understood to be due to the action of cell-membranes; but it will be a long time, I think, before microscopy shall have explained why an epithelial cell-membrane of the mammæ eliminates milk, while one of the liver eliminates bile.

But it is to the development which this science has given to cell-genesis and cell-agency that its greatest benefit to physiology is to be referred. For, if everything is not cells, as has been thought, yet the cell-doctrine is so widely true that it may be said to embrace pretty much all we know of organic life. We have been led, of late, to give the word Nutrition a more pregnant meaning than before. It is, however, based upon cell-action. Through what the microscope has done to illustrate this very nutrition, it enters upon the wide field of intricate pathological science; for, within a few years, many of the best pathologists have referred to what has been termed *abnormal* nutrition, the great part of that class of actions that have their expression in

the phenomena of disease. Of course this makes us look to the nutritive fluid, the blood, as the great source of all morbid action, and so we are led, on scientific principles, back to the "humoral pathology" of other days.

The health of an adult organic form may be briefly expressed as that condition in which the delicate balance of decay and reparation is so preserved that its physical identity is continued. From the capillary blood-vessels is effused the plasma, a basement material in which all cell structures arise, and from which are replaced tissues passing away. The intimate nature of this plasma takes on the type of the tissue in and for which it is effused; this is one of the reasons why the part is so exactly replaced. This constitutes normal nutrition. But when there is an unnatural condition of the blood, from a want of a healthy ratio of its elements, or a want of a correct relation between it and its containing vessels, this plasma does not appear to preserve its type-power, and, after its effusion, is not readily and faithfully appropriated. Hence, true nutrition ceases, and here begins what is understood by *abnormal* nutrition.

This abnormal nutrition may be above or below the natural standard: with the former, it is expressed by homomorphous; with the latter, heteromorphous products. Under the vague yet comprehensive term *inflammation* is included pretty much the same class of phenomena, but not thoroughly so; for, although we may say that in the inflammatory process there is an abnormal nutrition, we cannot yet say that all abnormal nutrition is of an inflammatory nature. The decision of this question, indeed, appears of little scientific importance, because we know little or nothing of inflammation except from its subjective phenomena. But this much appears certain, that the more the microscope is made to bear upon the early condition of diseased parts, the more are we led to think that the disease is based upon, or very quickly succeeded by, an inflammatory process. I think this particularly true of the diseases of the secreting organs of the body, whose very function and connection with the vascular system subject them to it more than others.

The viscera we can rarely have for examination during their earliest diseased condition, and, even if we do, the unaided eye is not able generally to recognize it on account of its interstitial and very elementary condition. The value of microscopy in this relation can scarcely be rated too high. But I especially appreciate its aid in deciding between post-mortem changes and real commencing disease; a decision that can in no way be positive in many organs with the naked eye, as I shall have occasion to illustrate in the following pages.

Then, again, our opportunities for the examination of an internal organ may occur long after the disease first appeared; it once existed, but has long passed away, and we see only its direct or indirect results. This is true of inflammatory more than of other diseases; it (inflammation) may have left the organ, as it nearly always does, with an impaired nutrition, below the natural standard; and with an *infra* nutrition for a period of time. Such curious changes occur then, that, judging from gross appearances, we lose all sight of the primitive disease. Now, unless it is in quite young subjects, the inflammatory process

always leaves its tracks behind it in a more or less tangible form, at least so that they can always be appreciated by the microscope, if not otherwise. I have already alluded to the value of these studies with the secerning organs of the body. But I know of no organs upon which these studies are more needed, for our correct comprehension of their diseased condition, than the *kidneys*. Aside from the manner with which practical experience has shown it to be true, it is apparent from the very structure and function of the organ. The kidneys are *excreting* organs; at any rate, their function does not seem to be one of a proper *secretion*. Their anatomy is as delicate and intricate as that of any other organ in the body, and their physiological importance is of the highest character, since they form the two great emunctories of the economy—and very slight pathological changes have both a corresponding intricacy and importance. Very slight deviations from their normal structure and function by disease give rise to very fully expressed pathological phenomena throughout the whole system. This importance has led pathologists to turn their attention very actively to these organs, but not with that amount of success, or that uniformity of result, that has attended equally zealous studies upon other tissues.

But, of all its diseases, that called Bright's disease is the most important, and although it has received almost unlimited attention, it is the one about which the widest difference of opinion has prevailed, and still prevails.

Its early history is well known, being first pointed out and its relations shown by Dr. Bright in 1827; and it was by him and Dr. Christison very thoroughly studied under the name of *granular degeneration of the kidney*.

Dr. Bright's investigations did not lead him to regard it of an inflammatory nature essentially, although inflammation might be one of its elements in some stages. The same may be said of the labours of Dr. Christison, who, however, took up more thoroughly the chemistry of the subject. After Dr. Bright, come the works of Gregory, Osborne, and many others, who, although they added largely to the experience in the disease, did not contribute much towards the elucidation of its intimate nature.

In a work soon after published, Rayer regarded the nature of the disease in a somewhat different light; it appeared to him as essentially a form of *nephritis*, which he called "néphrite albumineuse," in fact a *nephritis* attended with albuminuria; and the thoroughness with which the subject appears to have been studied, and the vast array of facts and cases for its illustration, have not their equal in the whole history of the disease.

The work of Rayer merits especial attention, not only because of the comprehensiveness with which the subject is treated, but because he has, I think, more than many others, regarded the affection, as subsequent and more intimate study would seem to show it to be, viz: of an inflammatory character, at least so, if it is a purely renal disease. It is not for me here to run over the bibliography of this affection. I have mentioned some of the authors who studied it previous to 1840, and whose eminence has made them authorities. I pass over to the more recent period, since the

microscope has been used in this direction. I should, however, mention that in 1839, at the suggestion of Rayer, Valentin subjected this disease to microscopic examination. His results were, that the tissue was infiltrated with granular and albuminous matter—in fact, that this organ is the receptacle of an albuminous exudation from the blood, and that this constitutes the disease; thus lending support to the views of Dr. Graves, advanced a year previous. (*Med. Gaz.* 1838.)

Gluge (*Anat. Mikroscop. Untersuch.* 1841) was inclined to regard the disease as of an inflammatory character, judging from the microscopical appearances it presented; there being the inflammatory corpuscle, &c.

Eicholtz (*Müller's Archiv.* 1845), in an article on the relation of this disease to that of the liver, maintains that it consists in the appearance of a new fibrous tissue in the kidney, or, to use his own language, "It is characterized by excessive development of a substance resembling fibro-cellular tissue, by which the peculiar glandular structure of the affected organs becomes compressed, and their function interfered with."

This view, a similar one to which was put forth by Henle some years previous (*Henle und Pfeiffer's Zeitschrift*, 1842), we shall refer to on a subsequent page.

In 1845, Dr. Geo. Johnson, of London, proposed a view quite different from the views of all who had preceded him (*Med.-Chir. Trans.* vol. xxix.), and the singularity of which, I confess, led me to turn my attention more particularly in that direction. To use his own words, "The disease then appears to be a fatty degeneration of the kidney, precisely analogous to the fatty degeneration of the liver." Since the appearance of his first article, several others have been published, all having the same bearing, and corroborating the doctrine first advanced.

There are without doubt some facts that apparently support this unique view, but I am not aware that it is generally recognized as tenable by leading pathologists. It is mainly to show that some carefully made experiments of my own have quite a different bearing, and that another view is tenable, that this article is written. To facilitate the comprehension of several succeeding points, I shall begin at the beginning, and state briefly the minute structure of the organ. It consists of the following: 1st. *The fibro-cellular matrix.* This is the framework of the others, and it is in and through it that they pass. 2d. *The Malpighian body.* This is the excreting organ, and consists of a bunch of terminal arterial vessels encased in an infundibuliform dilatation of the urinary tube. 3d. *The urinary tubuli.* These are tubes of about $\frac{1}{500}$th of an inch in diameter, lined with a very delicate basement membrane which is studded with epithelial cells. These tubes are tortuous and branching in the cortical or secerning portion of the organ, while they are straight in its medullary part. The epithelial cells become more and more delicate as they pass up from the calyces to the Malpighian body, and those lining the expanded portion of the tube about this last, are quite transparent.

It will be noticed that the above is according to the views given by Mr. Bowman, with which both my anatomical and pathological experience coincides. We have then a delicate mesh-work, through which permeates a system of fine tubes that end in a system of most delicate blood-vessels, which last have an arrangement for the transudation of a part of their contents into the former.* The question whether or not free fat exists anywhere in the healthy human kidney is of much importance, as bearing upon doctrines of disease. It is best decided, I think, by reference to results obtained from lower animals, for the artificial habits of man have changed somewhat the molecular condition of some of his organs. I think, with Dr. Gairdner (*Contributions to the Pathology of the Kidney*), that free fat does *not* belong to the normal human kidney, and I base my opinion upon a series of observations I have lately made upon many of the higher animals in both a wild and domesticated state.

In quite a number of species of the *Rodentia*, and some of the *Carnivora*, living in their natural wild state, I have never been able to find any free fat whatever. From this, I think it fair to conclude that, whatever may be the generality of appearances now presented, the human healthy kidney should have no fat, which would be the case, perhaps, if man was not at all artificial in his mode of life. Now, although the presence of free fat in the kidneys of man and the higher animals may be an *abnormal* condition, yet I think we are scarcely warranted in saying that all such kidneys are diseased; because experience has shown that it does not, unless completely surcharging the organ, interfere with the discharge of its normal function. The investigations of Mr. Simon (*Med.-Chir. Trans.* vol. xxx.) go to show that it depends upon irregular and unnatural conditions, and does not particularly affect the action of the organ. But that I might have the satisfaction of my own experience, I lately made a series of examinations for this object. They led to the same results. I found that, in wild animals, confined pretty closely and then well fed, free fat began to appear in these organs. The same I found true of numbers of old dogs and cats which lay in and about the house, their life passed in sleeping and eating. In all of these, the health appeared to be good, and in the few opportunities I had for observation there appeared no change in the discharge of the urinary function. In all these cases, I found the fat existing in the epithelial cells that line the tubes; often it was found in such quantities as to have supplanted the cells, being more abundant in their straight than in their tortuous portion. In no instance did I find it extend to the Malpighian body, which always presented a normal aspect. This, I think, satisfactorily accounts for the correct character of the function,

* To one who is not acquainted with it, the structure of the kidney cannot be explained without the aid of diagrams, and in the above brief description I have presumed much on the reader's knowledge, it being given only as a groundwork of the subject.—Vid. *Cyclopæd. of Anat. and Physiol.* pts. xxxii. and xxxiii. art. *Ren*, for a thorough illustration.

and although fat and epithelial cells loaded with fat may be found in the urine, as has often occurred to me, they in no way argue that the urine is not of itself normal, and was not normally excreted. Fat existing in these relations cannot, I think, ever lead to much harm, or be of a serious import, unless it be in such quantities as to obstruct the free passage of the excretion, or is an expression of that retrograde metamorphosis of tissue of which I have elsewhere spoken.

Dr. Johnson, in his various papers, regards this form of fatty kidney quite different from another which he thinks exists, and which is the one in his opinion constituting true Bright's disease. If he refers to free fat existing in another form as a primary product, I must say that such diseased condition of the organ has not fallen under my experience.

During the late appearance of cholera in 1849 in Boston, I had an opportunity to make a series of examinations as to this point in the human subject. Many of those who died were of robust health before attacked, and, as far as could be learned, were not subject to disease.

Aside from the slight desquamation of the epithelium from the tubes, and which belongs to the disease, the organs from different subjects presented microscopically a variety of appearances as to the presence of fat in their structure, indicating conditions of long duration, and quite distinct from that belonging to the disease of which they died.

It would appear, from what I then observed, that this kind of fatty kidney is not uncommon with the low classes of people, who are unfortunate in their conditions of life, whose food is bad and unequal, and living, withal, in an impure atmosphere.

In these cases, as in the animals above mentioned, the fat existed in a free form both in and out of the epithelial cells—the Malpighian body and its tubular sac remaining intact.

Associated with this fatty condition of the kidney was the same condition of the liver in most cases; which late experience has shown to be not uncommon in the classes of people I have mentioned.

On a subsequent page will be found a case, or cases, illustrative of this condition of the organ occurring under somewhat different circumstances of life.

Such are the relations of the presence of free fat as a primary product in the kidney; and, as a deposition, it must come in that same category, as the presence of the same in other tissues, with individuals in whom this fatty crasis exists generally. And I repeat that I think it may exist in these organs to quite an extent with impunity, in fact, until by its great quantity it may impinge upon either the excretory or efferent structures of the organs; then it is disease, because the function is impaired; which, in my opinion, occurs with a rarity bearing no proportion to the number affected with what is termed Bright's disease.

It is now for me to take up the subject proper, and describe what I consider to constitute the real pathology of this disease; to point out some of the

structural and functional peculiarities consequent upon its primary invasion, and to show how some of these secondary results may have been taken for the primary disease itself. In the first place, I should say that the term "Bright's disease" has been objected to by many, on the grounds that it expresses nothing of the nature of the disease, and its experience includes several different diseases. All this is very true, and especially the latter, if we adopt Dr. Johnson's view of the subject, for he says, "Acute and chronic desquamative nephritis, and fatty degeneration of the kidney, include the greater number of those cases to which the term 'Bright's disease' is commonly applied."

But I am of the opinion that the term should be preserved, not only because it honours and preserves the name of him who first described it, but because the disease Dr. Bright intended to describe is, in my opinion, single, and primitively of a uniform character.

There are many reasons why, in pathological experience unaided by the microscope, doubts should exist with some as to what class of morbid appearances should be intended to be expressed by these terms. This arises from the fact that the kidneys, more than any other organs of the body, simulate, from post-mortem changes, a variety of morbid aspects; and then again the disease really existing may not be at all apparent to the naked eye. This is so true that I have frequently heard professed pathologists declare that they are often unable to decide whether the organ before them is healthy or diseased.

On subsequent pages will be found cases, one showing that although albuminuria and other symptoms of this disease existed during life, the post-mortem showed that, according to *gross appearances*, the organs must be reckoned healthy; yet the microscope showed disease; the other showing that although the patient had no urinary or renal symptoms whatever, yet after death there were found gross appearances exactly like those of Bright's disease, the microscope showing it to be due to a curious congestion.

Cases like these may, perhaps, show why it is that some authors have declared that they have met with true albuminuria and other symptoms of the disease, with no pathological appearances whatever to correspond; and also that they have met with all the pathological appearances without a corresponding symptom. I will add that all this well illustrates how we are obliged ultimately to refer to minute investigations to correctly define the nature and nomenclature of a disease.

Bright's disease appears to me to be one of a decidedly inflammatory character; it is primitively an acute, or a subacute nephritis.

This opinion I have formed on the following data: 1st. Its general and symptomatic character. 2d. Its close relation with diseases of other organs of an inflammatory type. 3d. Its relation to pure nephritis of scarlatina. 4th. The microscopical appearances presented, there being invariably an inflammatory product found. And 5th. From the fact that such view enables us to reconcile pretty generally the phenomena of the disease.

Such being the heads, we will now take them up in detail:—

1st. *Its general and symptomatic character.*

It is not the good fortune of medical science for us to be often able to observe the very first symptoms of some diseases. This is especially true of the disease under consideration. Its commencement is, in the majority of cases, insidious—and the individual presents himself before you after the preliminary symptoms have passed. Still, I am of the opinion that, however obscure may be its commencement, yet if it can be carefully observed, it will be found attended with inflammatory symptoms, though sometimes of a quite light and transient kind; there may be no "lumbar pain," but there is a slight general febrile movement, some quickening of the pulse, and a feeling of general *malaise.*

But the history of recorded cases shows that in very many it is ushered in with well-marked symptoms, such as general febrile action, headache, local pain, &c. &c. These may be of very short duration, and the disease, once commenced, may pursue a course so chronic, that one would never mistrust its primitive type. This is certainly one reason why it has been considered by many as a non-inflammatory affection. Thus I have noticed in several cases I have carefully watched that for week after week, although there was constant albuminuria, I could find no febrile action, and the skin and pulse were normal. But at irregular intervals, there would suddenly appear a febrile movement, attended with local pain, and, although lasting but a few hours, was always followed by a greater quantity of albumen in the urine.

Where an inflammation of an organ passes into a very low chronic form, the nutrition of the part is so much altered, in fact becomes so low, that it is exhibited, if I may so express myself, little or not at all in the general system; and, like an indolent ulcer, it may exist for a long period of time, having none but local influences and relations.

When it occurs idiopathically, its etiology, according to all experience, shows that it can nearly always be referred to the same exciting causes which produce inflammatory affections in other organs. Such are exposures to sudden changes of temperature, to fatigue, and dampness; and, according to the accumulated experience of Rayer and other authorities, it is most common in the professions which habitually place men under these unfavourable circumstances of life. I am not aware, however, that the tendency of such experience is to show that these hard-working, muscular people are at all predisposed to fatty degenerations of any kind.

2d. *Its relation to diseases of other organs of an inflammatory type.*

Although Dr. Bright, in carefully studying this disease when it was first known, did not regard it of an inflammatory nature, yet he perceived that there was co-existent with it a general tendency in the system to inflammation. He was, therefore, induced to regard it as the real cause of various diseases of other organs, such as the heart, lungs, pleuræ, and liver, which seemed to supervene upon its presence.

He thought that the retention in the blood of elements that should be eliminated by these organs led to such alterations of its character, that these affections necessarily supervened. Of the coexistence of these affections there can be no doubt; and there are many recorded cases which would lead us to look upon the matter in the light of cause and effect. But since the early memoirs of Dr. Bright, and since experience has been accumulating in all directions, the medical world has been somewhat at variance as to what interpretation should be put upon these coincident phenomena. This has arisen from the fact that, after the review of a great number of cases of this kind, in very many, if not the majority, the diseases of the other organs have been found to be more chronic and of longer duration than that of the kidneys. And the more is this found to be so, as opportunities are the more abundant for carefully learning the patient's previous history.

The following questions then arise: When it thus occurs coincidently with these other diseases, are we not to consider the whole as a *blood-disease*, producing a low inflammatory tendency throughout the system, these organs being those in which it is expressed? Or are we to consider each as a local disease, producing, after a time, those changes in the blood that successively give rise to the affections of other organs?

At this time, the former view is most in accordance with observation—and what appears remarkable, it is supported by that very same class of cases which have been construed for the latter.

This is the view which has been adopted by Rokitansky (*Pathol. Anat.*, Syden. edit. vol. ii. p. 185), and since then by Rees (*On Diseases of the Kidney, &c.*, London, 1850), and Walshe (*London Lancet*, July 14, 1849). The opinions of such authorities as these, certainly, aside from other considerations, entitle this view to some weight. Moreover, it appears in accordance with some of the leading doctrines of the more modern pathology, which, by the light thrown upon them by organic chemistry and microscopy, appear to be recurring to those of other days.

Aside from the general tenor of cases, it is supported in the fact that all, or nearly all of the co-existent, connected diseases show themselves to be of a low inflammatory character. Such is the arachnitis as shown by Dr. Osborne, and the bronchitis, pleuritis, and peritonitis, and the pseudo-rheumatic disease which have been described by others.

But still more is this view supported by the fact of this disease supervening upon other diseases of a purely inflammatory character, or which have many inflammatory characteristics, having also a distinct and isolated origin. Such are chronic pleurisy and pneumonia, and especially phthisis. Recorded experience is quite full on this point, for it has at the outset arrested the attention of all observers. In chronic pleuro-pneumonia and in phthisis I have had the good fortune to have opportunities to see it, and that, too, under circumstances permitting careful examinations before and after death, from

which I was satisfied of its very short duration. At the end of this article I have introduced one of these cases as illustrative of this point.

I can see of no other construction to be put upon such phenomena than that a local inflammation, existing for a length of time, leads to a general dyscrasia; a low inflammatory tendency generally, and which would quite naturally have its expression in such an organ as the kidney, in which the nature of the blood is so carefully analyzed.

When occurring in those cases of phthisis that have fallen under my observation, there being many of the symptoms of true Bright's disease, I have been unable to see in these very emaciated subjects the least ground for supposing a fatty degeneration of the organ.

3d. *Its relation to nephritis of scarlatina.*

In studying the intimate nature and pathology of Bright's disease, the phenomena presented by the kidneys in scarlatina are of great importance, for from their unmistakeable nature they give something of a positiveness to our conclusions.

The recognition of renal trouble as forming a part of this affection is really of modern date. I am aware that it was hinted at by writers of twenty or more years since; and Rayer, in his comprehensive work (vol. ii. p. 429), in speaking of the few opportunities presented him, says that he "has noticed that the organs were quite often hyperæmic," &c. The recurrence, however, of this epidemic within a few years, under circumstances admitting of its most careful study, has given a decided character to the feeble views before entertained.

We now recognize it as a part of the disease, and I have been informed that, lately in London and Edinburgh, with some obscure cases in which the cutaneous marks were quite dubious, or did not exist, the disease was successfully diagnosed by the more prominently marked renal symptoms.

Aside from quite numerous papers found in various journals, the work of Dr. Miller (*The Pathology of the Kidney in Scarlatina*, London, 1850), recently published, shows the attention this subject has of late received.

In this disease it would appear that a morbific agent has been introduced into the system, having its expression in the cutaneous and mucous surfaces.

Whether the excited and inflammatory condition which the kidneys here presents is due to the direct action of the poison itself, or is indirectly due to the sudden and almost complete cessation of the cutaneous function, I am unable to say. But I think most probably the latter, since I have noticed similar renal troubles in patients affected extensively with other cutaneous diseases.

The point, however, is of no great importance in this matter; for you have, at any rate, an unmistakeable nephritis, supervening upon, or forming a part of, another disease. Consequent upon, or at least co-existent with this nephritis, you have, for a brief period, all or nearly all the symptoms of true Bright's disease.

Dr. Johnson, however (*Med.-Chirurg. Transact.* vol. xxix.), does not view

it as such, and thinks the phenomena here presented should come rather under the head of desquamative nephritis. But this appears to me quite unsatisfactory, for I consider *every* nephritis as desquamative, and almost necessarily so; exactly as is every inflammation of the true skin. This point needs some explanation as well as another, often urged, viz: the dissimilarity of this disease from true Bright's, as it commonly appears, as to its transient and curable nature.

In every inflammation there is a cessation of the normal nutrition of the part in which it occurs, and, if any nutrition at all exists, it is with the elimination of abnormal products. When, therefore, it exists in the kidney, an organ as we have seen of most delicate structure, the lost balance between the decay and reproduction of a part is quickly perceived. The epithelial cells, forming so large and important a part of its structure, cease to be nourished—they therefore "drop off" from the basement membrane to which they are attached, and minute granular, oleo-albuminous matter occupies their place, and we have then presented, both in the kidneys and in the urine, all the appearances of desquamation. Now, according to my own experience, it is of no account whether the renal inflammation be due to one cause or another; and I have alike witnessed these phenomena in cases of inflammation with tuberculous disease, and in common nephritis. To be sure, in a disease so acute in its action as that of scarlatina, the phenomena are best marked.

In regard to the second point, the transient and curable nature of the affection generally, it corresponds with our best ideas of the nature of nutrition and inflammation. In the first place, I should say, that the more recent experience with diseases of children, and since attention has been paid to examination of their urine as far as practicable, albuminuria and some of the other symptoms of nephritis are found to be with them of not uncommon occurrence, and yet of a very transient nature, coming and going like a light inflammatory trouble of the mucous air-passages. I have had occasion to see instances of it supervening upon severe infantile diseases.

It is well known that inflammation, as it exists in children, is somewhat different, as to its characteristics and results, from that of adults. There seems to be a far less departure from the normal nutritive type of the part, and if the normal nutrition is entirely suspended, there is not a marked tendency to an abnormal one leading to the production of adventitious products. And, if I may so express myself, the *type-power* of the part is still so active that its peculiar nutrition is not easily displaced, and when the disease subsides, the part soon gets back to its former condition. This is fully illustrated in every department of infantile pathology.

This is truly so with the kidneys in scarlatina; the vigour of the normal nutrition soon places the part as the disease found it; and although a most delicate structure, it preserves its proper continuity. In surgery, with infants, we well know that the younger and more vigorous the child, the more perfect

the repair. Exactly so is it, I believe, in scarlatina, and I have now in my mind some cases a friend related to me, in which adults having scarlatina, the renal symptoms never left them, but passed on to common Bright's disease. This has shown to me that, although nephritis may occur with impunity in children, it rarely does so with adults.

4th. *The microscopical appearances of the kidney in this disease.*

We have already been over the symptomatology of the disease. It now remains to refer to the material expressions of the disease as elucidated by microscopical inquiry, and it is hoped that the two may be made to appear quite compatible.

The conditions in which you may find the tissue of the organ after inflammation vary so much according to the duration or original severity of the latter, and its injury of the normal nutrition of the part, that some explanation may be necessary. But that this may the better be done, I will allude briefly to the gross appearances.

Dr. Bright thought that these might be considered as *three*. The first being that of ordinary congestion; the volume of the organ being much increased, the cortical substance being most abnormal in its aspect. The second is the true granulated kidney, there being apparently a granular deposit in the organ giving it the peculiar mottled aspect. The third is that of the most advanced stage; the organ is generally of a decreased volume, is contracted, and has a hard and often cartilaginous feel, with a pale anæmic aspect.

The first may be considered as that of the disease proper, and the last two as those of the results of the disease.

Rayer still farther divided the aspects, making *six* forms—perhaps a rather too detailed subdivision, since it somewhat complicates the subject. I need not here notice these divisions: but will only add that the first three correspond to the first of Bright; the fourth and fifth to the second; and the sixth to the third. Dr. Bright's division of the pathological appearances seems both the most simple and judicious, as it corresponds very closely with the progress and results of the disease.

We will now see how the microscopical correspond with the gross appearances, at the same time alluding more carefully to the details of the latter. The disease being originally in the vascular portion of the organ, it is to this that we are to look for the primitive lesions—the alterations of the other tissues being referable to this, either directly, as from mechanical agencies, or indirectly, through the affected nutrition.

In the few cases in which I have had the good fortune to be able to examine the organs in the early part of the first stage, I have found the arterioles and Malpighian bodies turgescent and increased in size, the latter often misshapen—phenomena which I think are not observed in simple *non-inflammatory* congestion of the vessels.

The size and general aspect of the tubes in this stage do not appear much changed, and the abnormal appearances are to be looked for in their contents.

An inflammation can exist but for a very short time in the organ before its effects are very appreciably perceived in the delicate epithelial tissues. The epithelial cells of the tubes of the cortical substance are found to have lost their natural delicate character, and to have a somewhat shriveled aspect. Moreover, there is some exfoliation, and both in the place of and in the cells will be found fine granular matter, and not unfrequently free fat in fine globules. This condition extends up to the Malpighian bodies.

The granular matter and the free fat I conceive to be the direct products of the inflammatory action. The healthy nutrition being suspended, the hyaline blastema which is effused from the blood-vessels does not suit the wants of the tissues to be nourished, and therefore is not taken up and appropriated; moreover, it is of a low character, and not capable of cell-attainment—resting on its granular stage of development. These granules, as I have elsewhere observed, consist of a minute particle of oil surrounded by an envelope of albumen; in fact, they are *utricles*, and not granules. In their process of formation, according to the *Acherson* mode of the formation of cells, if, whether from the quantity or the quality of the albumen, the conditions are not harmonious, the superabundant oil remains as such in the form of free globules. In all effused blastematous fluids, we know that oil forms in some shape a very important ingredient; and especially is this true of most inflammatory products in which the natural relations of the constituents among themselves is partially lost.

The very fact of the oil particles and utricles being in the cells, shows that they could get there only through the dyscrasia of the blastema.

Engorgement of the vessels throughout with the presence of granular matter in place of or about the passing away epithelial cells, besides often free fat, constitutes the microscopical appearances noticed at this stage of the disease. The alteration of the other tissues belongs properly, I think, to Dr. Bright's second form, the true granular kidney; although, strictly speaking, the changes we now see are referable to the agency of the first condition.

In the second stage another condition of things exists, the more active inflammation appears to have subsided, and what remains is of a low indolent character. Therefore, although we may see the effects of all this in the vascular system, yet the condition of the other tissues is what most arrests our attention. I may also remark that the feebleness of vascular action generally, which commences in this stage to be completed in the next, gives to the vessels often a less than their natural fulness.

The natural relation of the fibro-cellular tissue to the vessels and tubules, of which it is the supporting structure, is lost. From the abnormal nutrition it becomes hypertrophied locally or generally; in the former case giving rise to those small white spots, which, at this stage, are disseminated throughout the organ, and entitle it to the name of *granular*. Then again it may become atrophied, or more consolidated, leading to contractions and other appearances which we shall soon notice. In and about this fibro-cellular

tissue is effused more or less of this inflammatory granular matter. When in considerable quantity, it may form a fibrillated tissue by a linear arrangement of the granules into fibrillæ, these giving rise to white spots not unlike those produced by a local hypertrophy of the normal tissue. This I have seen in a few instances. This fibro-cellular tissue being thus changed, its passage-ways for the transmission of the tubes and vessels are quite altered, and misshapen tubes and compressed vessels are the results. The condition of the epithelial structures is like that of the first stage in character, but worse in degree. More granular matter and more free fat are generally found; and with these are sometimes found a bulged portion of a tube apparently completely clogged, its excretion being prevented by a constricted part below. There is one other appearance I have frequently noticed: this is the irregular and unequal form of the Malpighian bodies; some quite small, others very large—all due, in my opinion, to the irregular growth or action of the supporting tissue.*

The appearances presented in the third form are only an increase upon those we have just considered. The supporting tissue becomes more and more hypertrophied and condensed, and loses much of its former areolar character; low granular products are scattered through the organ, and the Malpighian bodies have a tough, bloodless aspect; all seeming to forbid any healthy or other action whatever of the organ. It certainly is a matter of some surprise that the blood transudes anything through such a structure. All these microscopical appearances which we have just traced belong, as must be seen, to inflammation and its results.

It now remains for us to trace how far such changes in the minute structure are compatible with the symptomatology and gross pathology of the disease.

The enlarged volume, the general turgescence of the vascular system of the organ, accord well enough with the microscopical appearances found. The albuminuria of this stage, however much of it may be referred indirectly to a general blood dyscrasia, is due, directly I think, to the vascular congestion, there being a serous transudation through the Malpighian tufts. That this is so appears to be shown from the fact that the Malpighian body is often found stained with the colouring matter of the blood, which not only indicates that there has been quite a congestion, but that the serum of the blood might pass in the same way. Some of the albumen found in the urine may come also from the abnormal albuminous effusion into the tubules; but it is mostly from direct transudation. This transudation I do not regard as due to mechanical relations alone, since, were it so, all congestion, whether inflammatory or not, should lead to the same results. This, however, is not true. There is an unnatural relation existing between the vessels and their contents, and this,

* These alterations in the fibro-cellular tissue are those which Henle, Eicholtz, and others have regarded as constituting the disease.

aside from the dynamic causes, leads to an easy separation of the albumen from the blood.

In the second stage, I conceive the albuminuria to be somewhat dependent upon other causes also; in fact, due to the results of the inflammation as much as to the inflammation itself.

The alterations of the fibro-cellular tissue which I have just pointed out lead to equally serious phenomena in the circulation. The Malpighian bodies and vessels generally are compressed, their action irregular, and with a pre-existing dyscrasia in the blood, an evil constantly fostering itself, it is easily conceived how they may strain the albumen from the blood. Add to this, constantly pressing blood from an inflammatory action on these compressed recipients, and you have, I think, a sufficient cause for the increased albuminuria of this stage.

In the third and last stage, these causes are still more active, and you find adequate reasons not only for the excessive amount of albumen, but for the very anæmic state of all the vascular tissues.

The atrophy and contractions of the second and third stages I conceive to belong purely to the sequelæ of inflammation, in exactly the same light as those of wounds and cicatrices.

During the more active inflammatory conditions of the disease, there is effused a considerable quantity of an adhesive plasma, which interstitially and otherwise forms attachments to various points. When the active stage of the inflammation subsides, and this ceases to be thrown out, an absorption of the hyaline portion takes place. From this, and from a concomitant condensation of the fibro-cellular tissue, I conceive the various contractions and puckerings so often seen to occur. What gives strength to my opinion in this matter is, that I have frequently examined the bridles of the contractions, and have found them to be an adventitious product.

The atrophy is dependent upon like causes, the increased amount and condensation of the supporting tissue at the expense of the vessels and tubes. This will appear a sufficient cause alone, when we consider for a moment the large proportion of space these last occupy in the healthy organ.

But I think there is another cause for the atrophy, and to which I have alluded in another place. I refer to *retrograde metamorphosis*, the nature of which change I need not here point out. It can well occur in an organ where the nutrition is so depraved; and a retrocession of some of the unnourished normal tissues back to their primitive granular type, and then a partial absorption of this last, afford an explanation not only of the obsolete character of some of the tissues found, but also of some of the diminution of size of the organ, and of the presence of free fat in the part.

I have selected from my note-book the following cases, illustrative of some of the points I have just treated. That they may be entitled to the name of cases, I have given them with all the general symptoms, yet in an abbreviated

form, and with a curtailing of some of those details which, if written, are never read.

The cases occurred in the practice of the Massachusetts General Hospital, Boston, with which I was then connected as one of the house-officers. Owing to the completeness of the means this institution furnishes for medical inquiry, I have thought them the more worthy of regard.

Case I.—*Cardiac Disease of one year—Œdema of the Extremities for five months—Symptoms entirely Cardiac—Death at the end of the third week. Autopsy: General Dropsy—Disease of the Heart—An apparent, but no real Disease of the Kidneys.*—D. S., æt. sixty-four, entered the Massachusetts General Hospital May 4th, and gave the following report: One year since, without appreciable cause, began to have distress and severe palpitation in the cardiac region. This continued for seven months without any added symptom, when first noticed swelling of feet and ankles. This last, extending rapidly, was soon followed by that of the upper extremities. Has noticed no renal or urinary symptoms—and until the last two months has been able to be up and about; at the time of entrance he was quite feeble and unable to stand, and the œdema of each extremity was strongly marked. His countenance had that pale, lifeless aspect met with in cardiac and renal disease. Most of the symptoms seemed referable to the heart, where, upon percussion, there was a less than normal space of dulness; the impulse was preternaturally strong; the first sound muffled, and with an endocardial murmur. The second sound normal. The urine, upon examination (the urine of all the cases was the *urina sanguinis*, or that passed in the morning), had a specific gravity of 1.012, but was normal, chemically and microscopically.

The œdema increased, and symptoms of debility supervening, he died at the end of the third week from entrance. Previous to death, the urine was several times examined, but in every instance appeared normal.

Autopsy nine hours *post-mortem:*—

Brain.—Ventricles dilated with serum.

Lungs.—Compressed by considerable serum in both pleural cavities, and congested posteriorly.

Right upper lobe universally diseased, apparently like chronic pneumonia, being solid, grayish, non-friable, and with no pus or trace of tubercle. Tissue of lungs otherwise normal.

Pleuræ.—With old and strong adhesions over the whole of the upper right lobe.

Heart.—Pericardium with natural amount of serum. Weight of organ ℥xx. Left ventricle with walls red and firm, and having seven-eighths of an inch maximum thickness. Cavity not dilated. Columnæ carneæ not hypertrophied. Slight disease at the base of the aortal valves. Otherwise, organ normal. Some ætheromatous deposit in aorta, but no dilatation.

Alimentary canal normal.

Liver.—Not fatty, and apparently healthy.

Kidneys.—Each weighed ℥iij, *apparently* much diseased, being small and tough. Surface rough, and having a mottled aspect, being a white mixed with a rather light red. On incision, cortical portion quite thin, the tubular portion approaching near the surface. Colour, mottled as externally. The whole appeared quite like the representations of Bright's disease. On stripping off the investing capsule, small lymph-like portions came with it.

By microscopical examination, the tubules of the medullary and cortical portion appeared quite normal, not irregular or distorted. The same may be said of the Malpighian bodies. The epithelium had its usual healthy aspect, and there was no appearance of desquamation either local or general. No appearance of granular matter in the tubules or elsewhere in the organs, and no fat, free or combined.

The few white points on the surface of the exposed kidney, and also adhering to the capsule, were found to be little sacs filled with columnar epithelium; and their slight attachment to the investing tunic caused them to be torn from their beds, when the former was stripped off. No appearance of granular matter about the surface, and no distinct adhesions.

I have related this case, not because it illustrates disease, but because it aptly illustrates the opposite. I consider it a case well showing the value of microscopical aid in the pathology of this organ. The gross appearances were those of a chronic Bright's disease; whereas, the excreting structure of the organ appeared, microscopically, normal—and this last corresponds exactly with the symptoms during life. I do not pretend to explain the shrunken and unnatural size of the organs. Neither am I well acquainted with their condition in elderly people dying of any chronic disease. The mottled appearance both externally and internally was, it appears to me, due to the peculiar mode of the congestion of the organ at the patient's death; and such singular appearances, it is well known, are not uncommon.

Pathology makes quite as great an advancement by our discrimination of what is *not* disease, as of what *is* disease.

Case II.—*Pulmonary Phthisis of many months—Symptoms entirely Pulmonary—Albuminuria, without other Renal Symptoms, the last month—Death. Autopsy: Disease of Lungs and Kidney.*—M. M., æt. 23, entered the Massachusetts General Hospital October 27. According to her history, she had had for several months the usual symptoms of advancing phthisis. At the time of her entrance, the tuberculous disease appeared confined to the left lung, at the summit of which were the physical signs of a cavity. The subsequent symptoms were wholly, directly or indirectly, pulmonary—and the disease pursued a steady, though not rapid march. From time to time I had analyzed her urine, and did not find it abnormal except in the excess of urates which usually occur during the febrile disturbance of phthisis.

On March 10th, the urine was carefully analyzed, yielding the usual results.

On March 13th, it was again analyzed, and the following is the record I then made: Of a turbid, amber colour, and with a cloudy, rolling sediment. Specific gravity 1.021, moderately acid. By ebullition and nitric acid it appears *albuminous*, so that the whole is quite troubled in aspect. By microscope, the usual appearance of coagulated albumen in urine.

On nearly every third day from this time until her death, the urine was examined. The specific gravity fell to 1.010, where it remained; the albumen rather increased, and at no one time was it found less or absent.

The disease advancing, on April 18th she died with the ordinary symptoms of phthisis, and I do not think that during the last week she complained of any local renal symptoms.

Autopsy 6 hours *post-mortem*.

Head not examined.

Lungs extensively tuberculosed throughout. On the left summit one large cavity, and small cavities elsewhere.

Liver rather large, weight 4 lbs. 3 oz. Edges smooth and rounded, aspect paler than natural. Incised, it had a doughy, soft feel. A thin slice under the microscope showed the epithelial cells to be crowded with oil, and very numerous fat-globules occupied the hepatic tissue.

Spleen, weight ℥xiij; otherwise not abnormal.

Alimentary canal presented nothing remarkable.

Kidneys of normal size and shape; weight of each ℥vss. Incised, they presented nothing remarkable; there was a natural proportion between the medullary and cortical portions. The investing tunic peeled off, leaving a smooth surface, which, however, appeared congested. I well remember that they were thrown aside, as presenting nothing remarkable, by one who is well qualified to judge of gross pathological appearances.

By microscopical examination, a thin rasorial section of both the medullary and cortical portions showed the tubes as normal in size and shape. But their epithelium had not its usual full appearance. Some of it had disappeared, being replaced by granular matter, which last, in fact, seemed scattered through the tubes, extending even to the Malpighian bodies; which, however, did not appear so much changed as the efferent tubes. In the cortical portion the appearances of inflammation were most prominent, disappearing as one approached the calyces. Although I examined with particular reference to the point, I found, both chemically and microscopically, no appearance whatever of free fat.

This case illustrates many points to which allusion has been made in the preceding pages. It shows, like the first, the value of microscopical aid in our studies of this kind; but, unlike it, it shows what *is* disease. I may add, had it not been for the aid thus furnished, it would have been passed by as one of those remarkable cases in which albuminuria exists with the other usual symptoms, without any apparent renal alteration, and about which Dr. Graves (*Medical Gazette*, 1838) has written. It has, therefore, more than ordinary importance, touching, as it does, that class of curious cases.

It shows also how renal inflammation, of a subacute character, may supervene upon another disease of an inflammatory type, and which, from its long standing, gives rise to a prominent dyscrasia of the blood. Here, also, the microscope showed that, although the liver was crowded with fat, no trace of it was found in the kidney.

Case III.—*Cardiac Symptoms of six months—Excessive general Œdema and Pleural Effusion—Albuminuria, without other Renal Symptoms—Death. Autopsy: Disease of Heart and Kidneys.*—E. M., æt. 38, entered the Massachusetts General Hospital May 4. He then reported that, six months previous, he began for the first time to notice cardiac trouble, by palpitation and dyspnœa. These continuing to increase, one month since he relinquished all work. Œdema commenced two weeks since, and, aside from these, knows of no other symptoms.

At time of entrance, he was feeble, and scarcely able to stand—whole aspect that of one having great difficulty of respiration, which last was quick and short. Pulse regular, but full. Œdema of every extremity, but especially of legs. By physical examination no signs of pleural effusion, the pulmonary symptoms being referable entirely to the heart.

By percussion, an unusually large space of dulness over heart. Impulse about normal. First sound attended with a dry endocardial rustle at its close, which sound extends up line of aorta. Second sound abrupt, and attended with a slight murmur.

The urine examined was loaded with phosphates. Specific gravity 1.020. By the usual tests, there was an appreciable, though not large, quantity of albumen. The microscope showed considerable minute granular matter like that of inflammation, in the deposit.

The march of the disease was rapid. Symptoms of pleural effusion appeared; the œdema increased; and the dyspnœa becoming quite urgent, he died two weeks after entrance with the usual symptoms of asphyxia.

Autopsy eighteen hours *post-mortem*.

Head.—Brain and membranes normal, but ventricles dilated with serum.

Chest.—One quart of serum in each pleural cavity; lungs much compressed thereby, but tissue normal.

Heart.—Pericardium contained one pint of serum. Weight of organ 1 lb. 6 oz.; of a rounded shape, and apex flattened. Cavity of left ventricle dilated to three times its normal size, but its walls not thickened. Columnæ carneæ prominent. Aortic valves nearly natural. Right ventricle and both auricles with their cavities a little dilated, but their valves healthy.

Alimentary canal presented nothing remarkable.

Spleen.—Weight 13 oz., and full of blood; otherwise normal.

Liver.—Weight 3 lbs. 8 oz., of healthy aspect and not fatty.

Kidneys.—Weight of each 5 oz., presenting nothing peculiar externally. Incised, the ratio of the two portions normal; but the whole had a red, congested aspect. Scattered through the cortical portion were white masses, circumscribed, and varying in size from that of a millet seed to that of a small pea. Stripping off the investing tunic, it carried with it minute portions of the kidney, leaving the surface quite rough, and in which were imbedded several white masses like those seen in the interior.

On the whole, according to gross appearances, if we except the white masses and the adhering tunic, the general aspect would not differ, I think, from that of many simply strongly congested kidneys I have seen. And certainly it had none of that peculiarly mottled and granular aspect of ordinary Bright's kidney.

By microscopical examination, a thin rasorial section of the cortical portion showed the tubes of Ferrein and the corpora Malpighiana to contain granular matter and the so-called Gluge's inflammatory corpuscles, at the expense of the normal epithelium. Many of the epithelial cells were badly shaped or shrivelled. The tubes of the medullary portion seemed but little affected.

The white points spoken of were composed of a delicate fibrillated tissue, the fibrillæ being made up of the same granular matter arranged in a linear series; a view borne out by the fact that the tubes immediately surrounding these points had much more granular matter than the others. No fat in a free state was found.

In this case, there was nephritis of probably long duration, but having a slow progress. The fibro-cellular tissue does not appear to have been much affected, and therefore we did not find corresponding changes in the size and shape of the organ.

The white masses, situated as they were in the midst of a congested tissue, and so well circumscribed, might well have passed for crude gray tubercles,

had they not been microscopically examined. I may add, there is every probability that here the cardiac disease existed first.

Case IV.—*Œdema of Lower Extremities, with Renal Symptoms, nineteen months—Cardiac Symptoms, with Œdema of Upper Extremities and Face, eight months—Albuminuria—Death. Autopsy: Disease of Kidneys and Heart.*—M. J., æt. 17, entered the Massachusetts General Hospital February 26, and gave the following report of the history of her disease: Fifteen months since, while at usual work, noticed in morning a slight swelling of feet. For several months, this did not increase; but after that, could not wear her usual shoes. Eight months since, began to have some cardiac palpitation, with a dry cough and dyspnœa. Soon after this, œdema of upper extremities commenced, attended with much general languor and depression. At time of entrance was quite feeble; countenance had a pale, flabby aspect, but no œdema of it or upper extremities. No local renal symptoms, and no pain upon pressure over region of kidneys. Œdema of legs up to knees. No præcordial prominence, but an unusual large space of flatness on percussion. First sound attended with a well-marked bellows murmur, which is very rough under right clavicle, and is transmitted to back and up carotids. Second sound masked by a coarse murmur over aortal valves. Both sounds not diffused. The pulmonary signs were those of oppression at base of chest, where there was flatness on percussion, and some crepitus, as though from pulmonary œdema. Urine examined, had a specific gravity 1.020, acid, and copious precipitates of albumen by both heat and acids. By microscope, the usual albuminous casts of the uriniferous tubes.

From this time no new symptoms appeared—the progress of the disease consisting in an increase of those then existing. Such were the palpitation, cough, dyspnœa, and general œdema, the last of which was so excessive that the skin of the legs burst, and the eyes were closed.—Patient died on May 5th.

Autopsy twenty-four hours *post-mortem*.

Œdema.—Legs bursting with serum—

Left pleura contained	. . .	one pint of serum.
Right pleura "	. . . .	two pints of "
Pericardium "	. . . .	℥iss " "
Peritoneum "	. . . .	three pints of "

Lungs.—Much compressed by effusion, but tissue normal. Old pleural adhesions at both sides, but no recent lymph.

Heart.—Weight 8 oz., red and firm; both ventricles somewhat hypertrophied. Cavity of left somewhat enlarged. Mitral valve so contracted as scarcely to admit the tip of the little finger. The aortal valves similarly contracted, with a trace of vegetation on each. No ossification.

Alimentary canal presented nothing remarkable.

Liver and *spleen* normal; the former not fatty.

Kidneys.—Weight of each 3 oz.; rather small, and apparently quite diseased. Surface nearly regular. External tunic stripped off smoothly, and leaving no trace of redness except two or three defined spots. Incised, whole aspect rather pale. Cortical substance opaque, yellowish-white, or fawn-coloured; not properly mottled, but looking as though infiltrated with albuminous, granular matter. Medullary portion not of remarkable aspect; not flaring, or abnormally approaching the periphery. On comparing the whole appearances with some of those of Rayer's Plates, the case corresponded quite closely with that of Fig. 4, Pl. vi.

By microscopical examination, a rasorial section of the cortical portion

showed the tubes of Ferrein and the Malpighian bodies much misshapen, often contracted and dilated, and many of them crowded with a fine granular matter existing in the place of the usual epithelium, the cells of which, when present, were similarly loaded with granules. The tubules of the medullary portion had a like appearance, though less marked. The fibro-cellular tissue was both hypertrophied and condensed—and was infiltrated with the same granular matter, though of a more albuminous nature. No appearance of free fat by the microscope; and the granular matter, treated with ether under the microscope, only very slightly disappeared.

A portion of the organ was sent to an excellent chemist for analysis; and he returned the following result: "The whole is mostly albuminous and fibrinous, with scarcely a trace of free fat."

I have thought this a fair example of chronic nephritis, going on to its last and worst form; and the kidneys presented, both grossly and microscopically, a good specimen of the appearances found in the third stage of Bright's disease, according to my own experience.

The presence of such quantities of inflammatory products, and the almost entire absence of fat, are well worthy of note. Unlike the last, it is probable that here the disease of the kidney existed first.

Case V.—*Œdema and Ascites of nine years coming on after Child-birth —Diarrhœa of three months—Albuminuria—Death. Autopsy: Disease of Kidneys and Fatty Liver.*—R. S., æt. 42, entered the Massachusetts General Hospital, Sept. 4th, and gave the following history of her case. Nine years since, after birth of child, noticed, without other symptoms, an œdema of the feet. This gradually extended to abdomen, and even into chest, so that the pulmonary function was impeded.

Has noticed no renal or urinary symptoms, except variation in quantity of urine, which has always been in an inverse ratio to the amount of dropsy. Three months since, a simple diarrhœa coming on, the ascites almost entirely disappeared. Three weeks since, this diarrhœa became aggravated, reducing her to her present feeble condition.

At time of entrance, there was an oppressive ascites, and much œdema of the lower extremities.

The urine was albuminous to the ordinary tests. The diarrhœa did not seem at all amenable to treatment, and four days after entrance she died, apparently from debility.

Autopsy eight hours *post-mortem.*

External aspect.—Adipose tissue everywhere abundant, and one inch thick in parietes of abdomen.

Brain normal.

Lungs healthy, but little pleural effusion.

Heart normal, but mediastinum loaded with fat.

Alimentary canal had a tolerably healthy aspect, except the lower end of colon, where the mucous membrane was reddened and injected.

Liver.—Weight 5 lbs.; large, and having rounded edges, of a light fawn colour, and a doughy, flabby feel. Incised, its aspect was quite pale and lifeless. It greased the knife, and a section put under the microscope showed the acini crowded with fat globules, which rendered pale and almost replaced entirely their tissue.

The few hepatic cells seen were loaded in the same way.

Kidneys.—Weight of each 3 oz.; small, but of usual shape. Rather pale,

but surface not rough. Incised, presented a pale, anæmic, tough aspect. The cortical portion had a decided granulated aspect, not really mottled. Tissue was rather firm. The tunic stripped off, carried with it minute portions of the organ, leaving the external surface with the same pale anæmic aspect as the internal.

In fact, the whole appearance of the organ was quite like that of the last case, and in comparing it with Rayer's plates, I fixed upon the same figure, as best illustrating its aspect.

By microscopical examination, a rasorial section of the cortical portion showed the tubes of Ferrein and the Malpighian bodies to be much misshapen, and their interior more or less occupied with granular matter, which was even more abundant than in the last case. But little healthy epithelium was seen. The fibro-cellular tissue was considerably changed, and infiltrated with granular and albuminous matter. No free fat visible, except here and there a small globule. Tried with the common tests of heat and ether, the organ yielded no perceptible amount of fat.

Both the gross and microscopical appearances met with in this case correspond, as will be seen, quite closely with those of the last, alongside of which I have introduced it, from the difference as to the general adipose condition of the two patients. In the former one, it will be remembered, the fatty tissue was quite absent; the liver contained but little free fat. In the latter, the opposite condition everywhere exists, the liver loaded with it. But in both the same condition of the kidney is found; a fact which certainly bears upon the fatty nature of Bright's disease, which Dr. Johnson has characterized as "precisely analogous to the fatty degeneration of the liver."

Were it not for burdening the article with details, other cases of similar character and importance might be introduced; but they would not, perhaps, illustrate any better than the preceding, the idea I have intended to convey as to the nature of this disease. In carefully recording cases of this disease, as they occur here and there, one is much surprised at the want of variety as to both gross and pathological appearances met with. In one well-marked, yet ordinary case, will be found nearly all that may subsequently be seen in the fifty that follow.

The following and concluding case I do not introduce as particularly illustrative of disease. It is one, however, possessing more than ordinary interest, for, in my opinion, the kidneys were found in just that condition we should expect to find them in chronic Bright's disease, according to the *new view* of the subject; whereas there do not appear to have been at all any symptoms of that affection. As a whole, it simply illustrates what I have remarked on a preceding page, viz: that there may be here, as well as in any other organ, a simple adipose accumulation with comparative impunity, so long as the fat does not occur in, or injure, the real functional tissue of the organ.

Case VI.—*Cancroid Disease of Antrum—No Renal or other Symptoms—Partial removal of Disease—Supervening Pneumonia—Death in two weeks. Autopsy: Disease of Lungs and Fatty Kidneys.*—R. M., æt. 62, entered the Massachusetts General Hospital June 26th, and gave the following report:—

Has always enjoyed fine and robust health until five months since, when,

following continued dull pain in right antrum, there appeared in that region a tumour. Aside from loss of sleep caused by pain, general health has not been disturbed. Has had no hepatic or renal symptoms; and, at time of entrance, appeared quite well, with the exception of local trouble.

Three days after entrance the tumour was partially removed, and proved to be one of those cancroidal affections starting from the epithelial tissue. One week after, a general febrile disturbance ensued, and there appeared both the rational and physical signs of inflammation of the left lung; under which, two weeks from entrance, the patient sank and died.

I regret that no opportunities presented for examining the urine for albumen during life. It was reported as not unnatural, and there were no symptoms to call one's attention to its chemical examination.

Autopsy fourteen hours *post-mortem*.

Head not examined.

Lungs.—The lower lobe of right lung presented all the appearances of pneumonia of the second stage. Right lung natural.

Heart normal. *Alimentary canal* healthy. *Spleen* healthy. *Liver* of natural size and appearance. Examined microscopically and otherwise, it appeared *unusually free from fat*.

Kidneys.—Weight of each 4½ oz., of natural shape and colour. Incised, tissue not at all congested, and of a light fawn colour, having the usual firmness; but there appeared to be a disproportion between the cortical and medullary portions of the organ—the former dipping down to near the pelvis, while the latter appeared buried in it. Stripping off the tunic, the surface was smooth, not pale or granulated. On the anterior surface, and at the lower extremity of the left kidney, was a cyst one-third of an inch in diameter, and apparently set in the tissue of the organ, being filled with a dirty, brown-coloured fluid. Both pelves contained quite an amount of free fat.

Specific gravity of kidney 1.042 (1.046 is, I think, its healthy specific gravity).

By microscopical examination, the contents of the cyst were found to be numerous epithelial cells and scales, of nearly all sizes and shapes, nucleated, but containing free oil, which also existed in considerable quantity out of them, all floating in a dull-brown liquid.

The external surface of the cyst rested in immediate contact with the renal tissue. Rasorial sections of the cortical and medullary substance showed the tubes somewhat enlarged and rather irregular, and many of their epithelial cells were distended with oil globules, which also were quite numerous in the free state. In some places, the amount of fat seemed to almost block up the passage of the tube, as shown by transverse sections. Fat globules, but *no fat cells*, were also seen in the matrix or fibro-cellular tissue. The Malpighian bodies appeared unchanged, and contained no fat, either free or combined.

A chemical analysis of the organ showed a very large per centage of fat.

The bladder had a normal aspect; but free fat existed on the surface of its mucous membrane, and its epithelial cells had much in their interior.

I will conclude by saying that, with this and the preceding cases, we have had an illustration of *fatty liver* with Bright's disease, and yet the kidneys almost free from fat; and also *fatty kidney without* Bright's disease, and the liver almost free from fat.

Boston, *July*, 1851.

ART. VII.—*Case of Molluscum developed by an Injury, and presenting, under the Microscope, the Characters of Medullary Cancer.* By HENRY H. SMITH, M. D., Assistant Lecturer on Demonstrative Surgery in the University of Pennsylvania. (With three wood-cuts.)

THE following case is deemed worthy of record, as illustrative of the character and pathology of that rare form of tubercular disease designated by dermatologists as Molluscum.

Mrs. M., æt. about fifty-five years, born in Scotland, but long resident in the United States, the mother of eight children, the youngest of whom is over sixteen years of age, has enjoyed robust health during most of her life. She is possessed of much intelligence, is of an active disposition, though weighing one hundred and eighty pounds; has a soft, delicate, and vascular skin; considerably freckled; hair naturally sandy, now mixed with gray; eyes grayish-blue; cheeks rosy, and "has always had pure blood," seldom or ever suffering from boils or other eruptions.

In May, 1848, whilst in perfect health, she pinched the skin on the radial side of the forearm, about two inches above the wrist, in a cupboard, but paid little attention to it at the time. Six weeks afterwards, she noticed a thickening or welt in the line of the contusion, and, some time later, saw a little tumour like a wart or mole near the same point. This tumour gradually enlarged, and was soon followed by two others of the size of peas; "they were simple hard lumps, without redness or pain."

After several months, the tumours began to enlarge, but the skin was not changed; and after another interval the largest lump attained the size of a walnut.

Fearing that "it would turn to a cancer," she consulted me in March, 1849, ten months after the accident.

At this time there were six or eight spherical tumours, varying from the size of a pea to that of an egg, on the forearm near the wrist. The largest one was slightly lobulated, firm, and resisting, with the smaller tumours at its base; they were all movable, devoid of sensibility, and with the skin of the usual colour, and movable on them. An occasional stinging pain was, however, felt along a thickened band (believed to be lymphatics) which extended across the flexor muscles to within one inch and a half of the bend of the elbow, where it was gradually lost. Being uncertain as to the character of the complaint, she was simply directed to cover the tumour with kid spread with soap plaster, and to use the iodide of potash internally. After continuing this treatment, with the addition of iodine ointment, for near two months, no change was perceptible in the tumours, except that the largest one had become flattened at the top, and wider at the base, in consequence of the pressure of the bandage. The skin appeared natural, except that it was slightly creased, and adherent to the tumour in the creases. There was, as yet, no pain of

consequence, the chief suffering being mental, the patient being depressed with the common idea of cancer. As she strongly objected to the use of the knife, chloride of zinc was freely applied, and the tumour sloughed out. The ulcer healed readily, the indurated chain softened during the suppuration, and the patient seemed to be cured. From this time until September, 1850, I did not see her, but was again consulted in reference to a new series of tumours near the elbow, at the point where the former indurated chain had ceased. On examining these, the same appearances were presented as had been noticed at the wrist; to wit, several spherical, firm tumours, of the size of peas and bullets, with one about the size of a walnut; skin unchanged, movable, and without signs of inflammation, but with occasional fits of pain; general health fair. Treated by iodine.

In another month, October, 1850, I again saw her in consequence of the tumours having been bruised by carrying a basket; the largest lump was now quite painful, and had rapidly increased in size. Fifteen or twenty new shot and bullet-like tumours had formed around it, and another indurated line could be traced in the course of the lymphatics on the inside of the arm nearly two inches above the elbow. Caustic was again applied to the largest tumour, and a large portion of it sloughed out. This ulcer, however, did not heal, but soon showed a malignant character, with thickened everted edges, ichorous discharge, and a constant disposition to slough, in addition to which, another small tumour appeared at the old cicatrix near the wrist.

The ulcer at the elbow, extending around two-thirds of the arm, soon opened the basilic vein, and gave rise to frequent hemorrhages, which were only controllable by lint for a few hours, when the bleeding was renewed. The general health now began to fail, the digestion became impaired, and the tumours appeared above the elbow, although the axilla continued *perfectly healthy.*

Hemorrhage returning from time to time, and it being impossible to check it, it was decided, in a consultation with Drs. Horner and J. M. Wallace, that, under the circumstances, the arm had better be amputated. Accordingly, I took it off (Dec. 15, 1850), before the medical class of the University, near the insertion of the deltoid muscle. Fig. 1 represents the appearance of the arm with the fungous ulcer immediately after the operation.

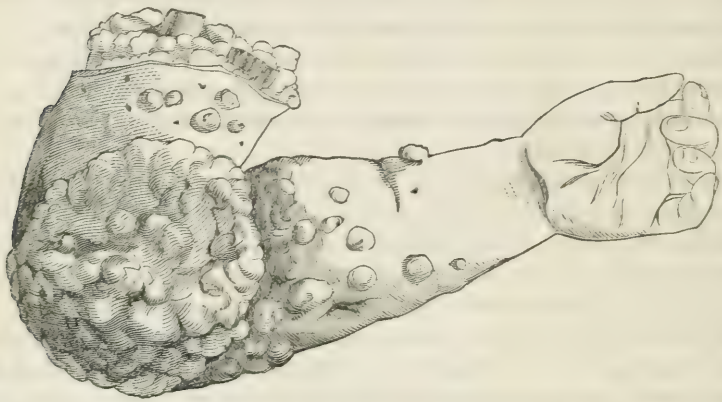
The stump was dressed with the cold water dressing, healed readily, and in four weeks the patient seemed quite as usual. In January, however, she complained of pain in the forehead over the right eye, and I found two new small tumours on the os frontis, just above the right frontal protuberance. These tumours soon became exquisitely painful, but otherwise resembled those formerly seen.

Under anodynes, tonics, and alteratives, including the preparations of Fowler and Donovan, her general health improved for a short time; though the violent neuralgic pain distressed her from time to time, and only yielded to an ointment of aconitina gr. j, cerate ʒj, applied to the part.

Under this treatment she partially resumed the business of her store, but complained of being excessively sensitive to cold.

Feb. 18*th.* I again saw Mrs. M.; the tumours had enlarged, and many others were apparent on the head and on other parts of the body, being the

Fig. 1.



first time that the skin seemed to be generally contaminated. Of this there can be no doubt, as my previous examinations had been thorough. The tumours on the head were nearly immovable, but those on other parts, as the stump and body, presented the original characters, though more scattered; one or two on the shoulders were red, and resembled a mulberry wart; and some of them were also highly sensitive. Her appetite had now failed, her digestion was torpid, and her general health consequently impaired, giving signs of disease not to be mistaken.

March 25*th.* Great increase in the number of tumours; those on the head lobulated, and the largest one livid and vascular on the surface, resembling fungus hematodes previous to ulceration. All the tumours are subject to "burning and shooting pains." Ordered anodyne, &c. &c.

April 1*st.* Disease progressing; complains of pain and tenderness in right hypochondriac region.

21*st.* Sufferings very severe; no ulceration in tumours; debility increasing; dimness of vision in right eye (corresponding to largest tumour); partial deafness.

May 2*d.* From the rarity of the case, several professional friends visited her. No change in the treatment.

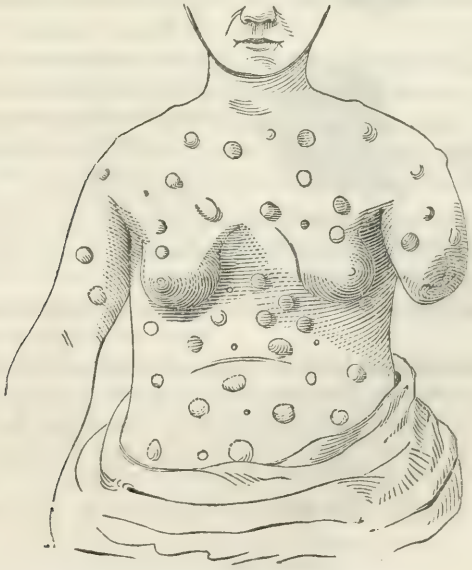
8*th.* Since last date unfavourable symptoms have increased; evident cerebral disorder; no vision in right eye—lid paralyzed; general tremors; unable to turn in bed; no power to retain food.

11*th.* Moribund, but yet sensitive to pressure on right hypochondriac region. Died at 6 P. M., May 11th, 1850, being more than two years since the original injury.

13*th*, 10 A. M. Being unable to obtain permission to open the body, I was obliged to be satisfied with an inspection, and with an examination of the largest tumour, as far as it could be done without opening the head. The body had been in ice thirty-six hours, and was about being prepared for the coffin, and her sons insisted on being present. All, therefore, that could be learned was as follows: The limbs and body presented the ordinary plumpness, there being comparatively little emaciation except about the chest and abdomen. Rigidity natural. Head presented ten tumours, most of which were anterior to the parietal protuberances, and varied in size from a musket-ball to an egg. The skin over the larger tumours was becoming vascularly discoloured, as noted before death. On incising the largest tumour, it cut with about the firmness of brain, being neither pulpy nor cartilaginous; appeared of the consistence of brain; had a pearly-white colour; showed no points of blood, and appeared entirely devoid of blood-vessels. It had been beneath the periosteum; the latter was thickened about the circumference of the tumour, but the periosteum and the bone at the centre of the tumour had been absorbed, so that the finger could be passed into the cavity of the cranium. The dura mater was not perforated. The eye of this side (right) was somewhat protruded, leading to a suspicion of pressure through the orbitar plate by some of the other tumours.

The skin on the neck, chiefly on its front, contained about eleven tumours of the size of a pistol-bullet, spherical, with defined base and skin unchanged. On the chest there were about thirty of the same consistence, varying in size, as shown in the cut (Fig. 2). On the abdomen, on the stump, in the

Fig. 2.



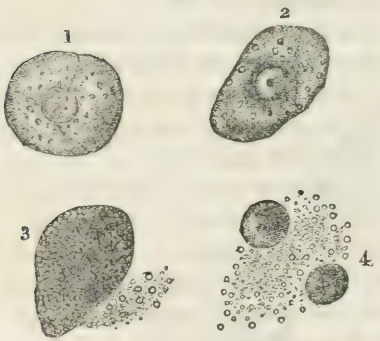
axilla, and above the clavicle of the amputated limb, were many more. The sound arm presented some, and the lower limbs had a few small tumours like peas. The back was thickly studded with them, some being purple, others unchanged, but the colour was deemed due to *post-mortem* changes. On the whole body there were at least one hundred and sixty or eighty tumours, entirely in the skin.

Having submitted a section of the largest tumour on the head to Dr. Jos. Leidy, I received from him the following note and drawing of the appearances which it presented under the microscope :—

Dear Doctor: The fragment of a tumour you requested me to examine exhibits beneath the microscope a structure consisting mainly of rounded or oval polyhedral cells, averaging the $\frac{1}{1600}$th of an inch in diameter. They are very delicate, so that slight pressure or the endosmosis of water is sufficient to burst them. Some have finely granular contents with a visible nucleus, but the greater part of them are more or less distended with coarse granules, resembling oil, completely concealing the cell-nucleus. It is this coarse, granular, oleoid matter which gives the opaque, white, cerebriform appearance to the tumour.

The cell-nuclei are usually single, globular, granular, about the $\frac{1}{3500}$th of an inch in diameter, and contain a minute central nucleus.

Fig. 3.



Structure of Medullary Cancer, highly magnified, taken from a section of the tumour on the head, 36 hours after death.—1. Globular cancer-cell, with visible nucleus, and a few fat granules. 2. Elliptical do. 3. Cancer-cell distended with fat granules. 4. Nuclei and granular matter from cancer-cells.

A quantity of the same kind of granular matter existing within the cells was observed exterior to and surrounding the latter; but this, I suspect, escaped from many of the cells which were ruptured by the violence to which they were subjected in the examination.

No portion of the fragment contained more than a mere trace of very fine filamentous tissue.

A portion of a tumour from the same patient as the above fragment, which I examined last winter, so far as I recollect, corresponded in its structure to the foregoing description.

It may probably interest you to know that I tried the experiment of inoculating cancer in frogs, by introducing a small piece of the above fragment of the tumour beneath the integument of the back of one of the latter animals. Several weeks subsequently, upon opening the skin of the frog, to learn the result of the experiment, I found the piece of cancer had formed a true vascular connection with the skin, and had itself become pervaded with a capillary rete more extensive than existed in it originally. For a more detailed

account of this and similar experiments,I refer you to the last number of the *Proceedings Acad. Nat. Sciences.*

Yours, very truly,

JOS. LEIDY.

Dr. Henry H. Smith.

Summary.—A patient, aged fifty-five years, previously in good health, pinches the skin of the arm; six weeks subsequently she notices a spherical tumour, with a broad base, firm and resisting, movable, and with the skin unchanged; no pain in the part; no other tumours elsewhere. Ten months after this, the principal tumour has attained the size of an egg, is lobulated, and with smaller tumours around its base; indurated lymphatics extend from it up the limb, but the skin remains natural. Caustic removes the tumour, and the ulcer heals. Six months subsequently the tumours re-appear near the elbow. Caustic applications remove a considerable part of the enlargement, but leave an unhealthy ulcer, accompanied by sloughing and frequent hemorrhage. New tumours form above the elbow, are removed, and then, the general health becoming impaired, the limb is amputated, nineteen months after the original exciting cause. Notwithstanding the absence of lymphatic disorder about the stump, the tumours re-appear in six weeks upon the head, then all over the body, excite violent neuralgia, and result in death about two years from the first appearance of the disease. General inspection and microscopic examination indicate the presence of albuminous matter, similar to that of medullary sarcoma.

Remarks.—The rare occurrence of Molluscum, and the want of accurate accounts of its pathology, have tended to render our knowledge of it somewhat indefinite.

The earliest case recorded, appears to have been that of John Reinhardt, reported by Professor Tilesius, at Muhlberg, in 1742, but to which he assigned no name, though he described minutely the characters of the complaint. The patient, who was in his fiftieth year, had his body at birth covered with small excrescences. When fifty years old, these excrescences varied in size from a pea to a pigeon's egg, were of various forms, some being like warts, others oval; the prevailing colour being red, with here and there one of a dull yellow or brownish hue. In the centre of the largest was seen a small opening, *from which small thickened vermiform matter can be expressed like "comedones."**

Bateman recalled attention to the disease thus described, designating it as molluscum, and defining it "as characterized by the appearance of tubercles of slow growth, little sensibility, and of various sizes, from that of a vetch to that of a pigeon's egg. He also described two varieties in one, which he deemed

* Clinical Lecture on Molluscum, by Francis Hale Thompson, London Lancet, May, 1841. Du Molluscum; recherches critiques sur les formes, la nature, et le traitement, par Dr. Jacobovics, Pesth, 1840 (see Dr. Patterson's paper).

contagious; a *milky fluid* could be pressed out of an opening in the tumour, while in the other there was no discharge.*

Alibert and Biett employed the name of Molluscum from "the resemblance of the tubercles to the eminences which grow on the bark of the maple tree."†

Rayer places the disease in question under the head of cancer mollusci-forme, and describes it as characterized by tubercles which are either flat or slightly rounded in the centre, indolent, of the same colour as the skin, and of a size varying from a five cent piece to that of five francs, the anatomical characters of which were a very considerable thickening of the corium, the tissue of which had *become hard and of the consistence of scirrhus.*"‡

Cazenave and Schedel follow Bateman in the description of the disease, adopting his two varieties, of molluscum non contagiosum and molluscum contagiosum. In a patient seen at St. Louis affected with prurigo senilis, they saw a number of small tumours spread over different parts of the body, the largest as big as a nut, the rest not larger than peas; they seemed to be *formed of dense fibrous substance and were not painful to the touch.*§ "Contagious molluscum is a very rare disease, and has not been met with in France."‖

Dr. Patterson¶ in an excellent paper on the contagious variety, presents drawings of the structure of the tumours, showing the tubes and other portions of a structure indicative, as he believes, of their being obstructed sebaceous follicles.

Dr. Henderson** has seen five cases corresponding with the description of Bateman. "Examining the structure of these tumours, he found them to consist of vertical cells opening towards the centre and discharging their contents into a common cavity, which communicated with the exterior by the excretory opening. The contained matter consisted of nucleated cells, about $\frac{1}{1000}$th of an inch in diameter."††

Dr. Washington L. Atlee‡‡ reports a case in a female in which the skin was covered with tumours varying in size from a pin's head up to that of a large nut, beneath the skin and firmly attached to muscular and tendinous tissue. The removal of one of the tumours on the thigh showed it to be the *fibro-cellular encysted* tumour of Dupuytren. The patient dying some months subsequently a *post-mortem* examination showed that there were three distinct classes of tumours. 1. The molluscum of Bateman. 2. The fibro-cellular

* Synopsis of Cutaneous Diseases.

† Dictionnaire de Médecine, t. xx. p. 136.

‡ Traité sur les Maladies de la Peau, t. ii. p. 260.

§ Cazenave and Schedel, edited by Dr. H. D. Bulkley, New York, p. 253.

‖ Loc. cit.

¶ Cases and observations on the Molluscum Contagiosum of Bateman, with an account of the minute structure of the Tumours, by Robert Patterson, M. D., Leith, Edinburgh Med. and Surg. Journal, vol. lvi. p. 279, with plates.

** Edin. Med. and Surg. Journ., vol. lvi.

†† Quoted from Wilson.

‡‡ Amer. Journ. Med. Sciences, vol. vii. N.S. p. 296.

encysted of Dupuytren, which crackled like scirrhus when cut into. 3. An encephaloid mass found in the abdomen.

Dr. J. H. Worthington* reports a case in which the tumours were from the size of a pin's head to that of a split pea; soft, elastic to the touch and covered with cuticle, which does not differ from that which is natural. The tumours seemed to contain a pulpy or semifluid matter, were devoid of sensibility, perfectly indolent, and with no signs of inflammation about them. The skin over a few was discoloured and livid, owing to a defect in the capillary circulation. They had existed many years and undergone but little alteration.

Dr. Erasmus Wilson† disbelieves the contagiousness of the variety of Bateman, and regards all the tumours as dependent simply on obstruction of the sebaceous follicles, finding them to present all the characters of a small conglomerate gland, and the matter being identical with that from the sebaceous follicles.

Mr. Frederick Hale Thompson‡ reports a case of molluscum affecting the entire skin, and accompanied with the development of a medullary tumour on the thigh. The tumours covering the skin were unconnected with anything, but were of the same albuminous character as that on the thigh. He therefore suggests the name of Albuminous Molluscum for this variety. In the lecture accompanying this case is a full analysis of the paper of Dr. Jacobovics.

This gentleman has done much towards simplifying the subject by proposing a division of the disease into three classes, according to the character of the structure of the tumours, to wit:—1. Tubercula fungosa. 2. Tubercula atheromatosa. 3. Tubercula variegata.

According to Dr. Jacobovics, Molluscum is "characterized by congenital tubercles, hereditary or acquired, more or less numerous, of variable volume from that of a pea to that of a small melon, sometimes round, sometimes oval, as often flattened, irregular, ordinarily sessile, rarely pedunculated. They may preserve the colour of the skin, but often present a red-brown, yellowish-brown or bluish-black colour; their surface may be smooth or mammillated, dry or humid, sometimes scabby, *as often firm as soft, solid or atheromatous,* &c. &c.

Of the seat of the disease he says—

1st. The funguous tubercles are seated in the dermial cellular tissue.

2d. That he cannot determine the seat of the atheromatous from the incompleteness of the evidence which we possess.

3d. That the chorium and epidermis participate in the lesion which seems previously to have affected the sebaceous follicle.

In reviewing the testimony thus collected, much of the apparent contrariety of the description of this disease appears to have been owing to the different varieties having all been referred to the description of the original case of Tilesius. Adopting the classification of Jacobovics and the well sustained

* Amer. Journ. Med. Sciences, vol. x. N. S. p. 284.

† Diseases of the Skin, Phila. edit., p. 340.

‡ London Lancet, May, 1841, p. 256.

views of Wilson, Molluscum may be defined as a disease creating a change in the sebaceous follicles of the skin, in which such cell changes can be noted as are seen in other tumours seated in this tissue. The Contagious Molluscum of Bateman, will include the cases of Patterson, Henderson, Biett and Worthington, and is probably nothing more than a disordered secretion and change of structure in the sebaceous crypts as stated by Wilson; while the cases of Rayer, of Hale Thompson, Atlee, and that at the head of this paper may be regarded as fibro-scirrhous and albuminous degeneration of the same structure. Such an arrangement of the disease will be found to harmonize all the cases heretofore reported. It is deserving of special notice, viz., that if as stated the disease is seated in the sebaceous tumours, it must be, as it has been, amenable to constitutional treatment, and is certainly not malignant and probably not contagious, though when it is attended with complications of the general system it may present the ordinary variety of fungus hæmatodes or medullary sarcoma, and has hence been well named as Albuminous Molluscum. There is, therefore, but little reason to doubt that an obstruction or a fibro-scirrhous or medullary degeneration of the sebaceous follicles, combined with a marked cachexia, may be regarded as the pathology of this complaint. In the case now reported, the injury to the sebaceous follicles of the skin on the arm, merely induced the medullary deposit and the development of the constitutional disease just related, in the same manner that a local injury will lead to the development of cancer in any other organ of the body. The fact, as stated by Dr. Leidy, of the growth of a portion of the tumour taken thirty-six hours after death, and after being thirty hours in ice and inserted into the skin of a frog, presents an instance of vascular action not often met with. The well known accuracy of the observer and character of the Association to which the frog was shown, leave no doubt of the correctness of the point stated.

Philadelphia, *July*, 1851.

Art. VIII.—*On Nausea and Vomiting as a Symptom of Cardiac Polypus.* By Geo. W. Baskin, M. D., Member of the American Medical Association. (Read before the Mercer County Medical Society.)

Among the diseases which are difficult to diagnose with precision, are some of those which involve the heart and its appendages. True, there are certain phenomena present in those cases, which to the observant pathologist, unerringly point to the diseased organ; and, by the aid of percussion and auscultation, the practiced ear may and does determine, absolutely, the exact nature and location of most of the lesions affecting that viscus; but there are still some lesions of the heart, for the detection of which we have no certain diagnostic sign. In this last class we may confidently place *the formation and presence*

of a polypus or polypi within its cavity or cavities. Writing on this subject, one of the latest and best of authors says, "their symptoms are uncertain." Another, no less distinguished, says the diagnosis "cannot be easy" but may be suspected from an aggravation of general symptoms; while a third adds a long enumeration of symptoms, that may possibly indicate it (but which are common to all diseases of the heart). "We confess that we have no other means of resolving this difficulty, than by a reference to the progress of the disease." Concurrent with the opinions thus quoted is the testimony of all our standard medical writers, and we are thus, for the detection of this disease, left without any guide, other than what is furnished by the consideration of a certain set of symptoms, which pertain alike to all diseases of the heart. There is then still room for inquiry on this subject, and it is proposed to submit briefly two cases of *Polypi of the Heart*, with such remarks as have suggested themselves, in the hope that they may assist in resolving the difficulty. Let me premise that by the term "Polypus of the heart" is meant those fibrinous concretions which occur some time previous to death, become semi-organized, and by their presence in the heart, occasion a decided disturbance of its functions, ultimately endangering the life or producing the death of the patient. There is another species of polypus—so called—formed by the coagulation, or a separation of the constituent parts of the blood, just before, or at the moment of dissolution—but to them we do not have any reference.

Case I.—Mr. L. L., aged forty-five, was seen in the spring of 1846, labouring under a dropsical affection, the primary cause of which had not, at that time, been ascertained. His whole body was anasarcous and enormously swollen; large fluid accumulations distended the belly and filled the thorax, and there were also present unequivocal symptoms of effusion into the ventricles of the brain—with pressure more particularly about the root of the optic nerves. Under appropriate treatment—medicinal and operative—he was relieved of his dropsy, and he was then (it had been impossible to do it at an earlier period) carefully examined. His heart, which was enlarged and hypertrophied, with some trifling evidence of valvular obstruction, and his liver, which was much enlarged, were the only organs in which any lesion was discoverable, and their condition sufficiently accounted for all the symptoms that had been observed. His health in a short time had improved so much that further attendance on him became unnecessary, and the progress of the case for some months is unnoted.

In February, of the subsequent winter, I was again called to see him, and he was then suffering as much as at any time before, from a return of the more prominent symptoms. The reaccumulation of water in his belly and chest had been very gradual, but had become so great as seriously to interfere with his respiration, and the consequent necessity of a constantly upright position, together with sleeplessness and want of rest, had very much prostrated him. A marked feature, however, was an occasional, but increasingly frequent tendency to *nausea and vomiting*—a symptom that had been particularly observed by the patient himself, as different from any suffering he had previously had. Physical exploration revealed, more distinctly, the cardiac enlargement, and a decided obstruction to the closure of the aortic semilunar valves. He was again relieved for a short time, but about six weeks

prior to his death, which occurred early in the following April, there was a great aggravation of all the symptoms, especially those dependent upon deranged function. The occasional nausea and vomiting soon became constant, and for some days before dying it was impossible to administer any nourishment, or drink, or anything whatever. That symptom was beyond the control of medicine, even for mitigation. He died suddenly, as if by syncope while sitting in his chair, and in a few hours afterwards, assisted by my father, an examination was made of his body. Circumstances prevented a very extended investigation, and our attention was therefore at once directed to those parts, which, during life, had afforded the most evidence of disease—the thoracic and abdominal viscera. Simply premising that, in addition to a general anasarca, there were found large quantities of fluid in both the large cavities, we will speak of the condition of their contained organs. On opening the thorax the *lungs* were seen bearing some traces of an old pneumonia, and there were some slight adhesions between the right lung and the costal pleura, but there was no evidence of any recent disease. The *pericardium* contained about twice as much fluid as ordinary, and, considering how general the effusions had been in other parts, it was a matter of surprise that so small an amount had occurred in that sac.

The *heart*, being separated and removed from the body, was found to be greatly enlarged, and its cavities, laid open, disclosed an excessive hypertrophy of the left ventricle. The weight of the viscus, apart from the right auricle, which had been carelessly severed, was twenty-one ounces. Within the left ventricle was found a *polypus*—a semi-organized mass of a yellowish-white colour, opaque, of a fibrinous structure, and of an oblong, irregular form, measuring nearly three inches in length, one in width, and three lines in thickness. It was attached to the ventricular walls by small shreds or fibres, through the columnæ carneæ, and thence, gradually lessening in size, it extended into the orifice of the aorta, there to be similarly connected with the free margins of the semilunar valves. The valves themselves, and every other part of the organ, except those already specified, were perfectly normal.

Around the *pyloric orifice of the stomach* there was a very slight scirrhous deposit, but not, by any means, sufficient to produce any functional disturbance, and apart from that, not the least mark of disease was perceptible.

The *liver* was slightly enlarged—not near so much as had been supposed—and on its surface was deposited, in irregular patches, a substance not unlike cartilage in colour, structure, and hardness.

Our investigations were carried no farther.

Case II.—Miss P., aged about nineteen, and of medium size, had been in ill health for nearly a year. In the month of October last, she rather suddenly and rapidly grew worse. Two symptoms, more particularly noticed by the family from their unpleasant character and the distress they occasioned the patient, were an exceeding great dyspnœa, and nausea and vomiting. The former had been present, in some degree, during her entire sickness, but was much aggravated, and the latter had only manifested itself for the first time at the period when she grew worse. About a week after thus becoming worse, she was suddenly seized with convulsions, and, on that occasion, I first saw her, she having been under the care of another physician previously. The convulsions returned with much violence several times after I began attending upon her, and had they not been evidently dependent upon causes not likely to produce such, I would have pronounced them to be epileptic, so nearly did they assume the peculiarities of that disease. Prospectively, let me remark, that she was not again so affected until a few days previous to her death. As soon as possible, a careful examination of her case was insti-

tuted, and the suspicion, that an observance of her general symptoms awakened, of disease of the heart in some form was confirmed thereby. Auscultation over the cardiac region afforded a loud and distinct sawing sound, mingled with an indescribable murmur or noise, such as I had not before met with, or seen described. Greatly predominant, however, was the *sawing* sound, but owing to the complication just noticed, the exact location of the lesion producing it could not be determined. Percussion revealed an increased bulk of the heart, as also some effusion into the chest. The lower extremities were swollen and œdematous, as were the hands occasionally. Her pulse, varying in frequency, was hurried, small, and irregular. No disease of the lungs or abdominal viscera could be detected. These physical signs continued unchanged throughout the case, but in its progress, those dependent entirely upon functional derangement, were greatly aggravated. As in case No. 1, the nausea and vomiting became almost constant. It occurred under all circumstances and at all hours, frequently disturbing her repose, and at no time could it be traced to a certain cause. So persistent was this symptom as to induce frequent but fruitless searchings for some organic gastric lesion, and by it even the little relief that else might have been afforded her, she was deprived of. A remarkable hemorrhagic tendency was manifested by an almost constant dropping of blood from the nose, oozing from the cutaneous pores of the face, and, towards the close of life, by a sanguineous vaginal discharge, which, from the time of its occurrence and other circumstances, we were prevented from regarding as a true menstrual flux.

A fatal prognosis was, of course, promulged and a palliative treatment adopted.

A few days before she died, she was again seized with convulsions, followed by a deep coma in which she died, just six weeks from the time I first visited her.

Autopsy, thirty hours after death, in the presence of Drs. Grier, Hunt, and Harnet.

As in the preceding case, attention was specially directed to those organs in which, from symptoms present during life, we had reason to suspect we would find the seats of disease. Hence we first opened her chest, within which, on the left side was found some dropsical effusion, not, however, in sufficient quantity to produce any great degree of dyspnœa. The *lungs* were clear of any sign of disease, recent or remote.

The *heart* and its appendages were next removed from the body and carefully examined.

The pericardium was empty of its usual fluid. On the inner surface of the sac as well as on the outer surface of the heart were found rough granular patches of fibrinous deposits, varying in size, and evidently the result of an acute pericarditis. The *heart* was much enlarged and hypertrophied. With the means at hand we ascertained its weight to be at least seventeen ounces, but this is only an approximation to the true weight, and, it is possible that it may have been as much as a half ounce more. Certain it is, however, the organ had doubled its normal weight and dimensions. Neither in the appearance of its walls, nor within the cavities of the right side, was anything unusual noticed. The hypertrophy was found to be confined entirely to the walls of the left ventricle, whose cavity was much diminished in capacity. Within it was a mass of semi-organized fibrinous tissue, of almost cartilaginous hardness, opaque and of a yellowish-white colour. This concretion was nearly four inches in length, and at its largest part measuring about one inch in width and three or four lines in thickness. Thence tapering towards each end, the one extremity passed through the auricle and extended some way into

the pulmonary vein, while the other extremity was attached to the cardiac walls near the apex. From the whole length of this body, small threads or fibres passed off to fasten themselves firmly to different points of the auricular and ventricular surfaces. The body of the polypus was firmly adherent to, and lying between the free margins of the mitral valves, and by its presence utterly preventing an accurate approximation or wide separation of them. The result of this condition of the parts was, that not only regurgitation of blood from ventricle to auricle was not prevented, but that the passage of blood from auricle to ventricle was impossible to a great extent; thus producing a fulness of the pulmonary vein and a consequent engorgement of the lungs. Hence would arise much of the dyspnœa that marked the case, and this fulness and engorgement of the circulatory system, propagated to the brain from the great centre, would account for the occurrence of convulsions at the period when the polypus is supposed to have formed.

The stomach presented not the least trace of disease (much to our surprise and contrary to all expectation), nor did any other of the abdominal viscera present anything unusual in their appearance.

Remarks.—The object of this paper is to inquire whether the sudden occurrence of nausea and vomiting, and its continuance in the progress of and concurrently with other undoubted symptoms of heart disease, can be considered as pathognomonic of the formation and presence of fibrinous concretions or polypi within the heart?

It is not proposed to evolve a theory from the phenomena of the two cases cited, but it is conceived that they, taken in connection with collateral reasons, would justify the belief that there is some truth in the idea broached in the inquiry.

One fact, worthy of note, is that no writer in the enumeration of the symptoms of any other morbid condition of the heart, mentions or alludes to the presence of nausea and vomiting; since, if observant practitioners and pathologists, with extensive opportunities of observing the course and phenomena of diseases of which they write, do not any of them notice a particular symptom, the inference is fair that it has not occurred, and never does occur, and hence in other cases, when present, would be deserving of special attention.

But there are two authors of eminence—though only two, that are known to me—who mention the occurrence of nausea and vomiting in connection with the presence of fibrinous concretions in the heart. In his book on that organ, Aran, in speaking of this special condition, says—after giving other general symptoms—that there "is nausea and continued vomitings, and in some cases, stupor and feeble convulsive movements." On the same disease Hope remarks, that "if there is a sudden aggravation of the symptoms common to disease of the heart," occasionally accompanied with nausea and vomiting, the presence of a fibrinous concretion may be suspected." So far as the authority of books will avail—however slight it may be—it certainly favours the idea that nausea and vomiting, conjoined with other symptoms of heart disease, is rather peculiar to the polypus of that organ.

My own experience and observation would tend to confirm the opinion. Very many cases of diseased heart—in my own as also in the practice of

others—have fallen under my observation and examination. The diagnosis, in some of the cases, was confirmed by the opinion of the most eminent physicians in this country, and in an equal number by careful post-mortem examinations; but in only one besides the two given were the sickness and vomiting observed. In that one, disease of the aortic valves was thought clearly to have been made out, but no opportunity offered after death of confirming the truth of that opinion, nor of verifying the suspicion entertained, that there was present a fibrinous concretion. The absence of these symptoms, in my practice, holds good even for those cases of functional derangement of the heart, when we would most readily expect that, through the disordered nervous system, there would be some sympathetic derangement of the stomach and other important parts of the economy.

In the two cases given, it will be observed 1st, that, in both cases, there was a sudden aggravation of all the symptoms of heart disease some weeks prior to their death.

2d. That, simultaneously therewith, the patients were seized with nausea and vomiting—which continued unabated through life.

Knowing as we do, by actual observation, that there were polypi in these cases, we are ready to infer that their formation and presence was marked by the sudden and continued aggravation of all the general symptoms. And being also in the knowledge of the fact that there was not, in either case, any lesion of the stomach to produce the nausea and vomiting, may we not, with equal justice, infer that as these symptoms occurred simultaneously, and continued with the others, they resulted from the same cause? But we have also, in the one case, the occurrence of convulsions at a short period after the supposed formation of the polypi, their return before the death of the patient, and that death preceded for some days by coma—which symptoms Aran considers as rather indicative of the condition in question—to strengthen us in the inference, that the concretions were antecedent to the beginning of the nausea and vomiting.

We will not attempt to theorize upon the subject—to give the why or the wherefore of these things—but trust, that if there is any force in the proposition submitted, that it will be confirmed by the observations of others.

Mercer, *March* 1851.

Art. IX.—*Case of Stricture of the Œsophagus.* By Robert H. Cummins, M. D., Wheeling, Virginia.

The subject of the disease was the child of Mr. James Blake, an interesting little girl between three and four years of age. On the last day of August, 1850, the mother had reduced to a liquid state, for a domestic purpose, a portion of common potash, such as is made from wood ashes, and is used in

the manufacture of soap. The child, mistaking it for water, drank it; not much alarm was felt by the parents at the time, and they were satisfied with applying some domestic remedies. On the next day, however, I saw the child, and on examination, I found the whole mucous membrane of the mouth and pharynx in a state of disorganization. It presented a white appearance, and looked as if it could be easily detached from the subjacent tissues. The time had passed by when oleaginous or acid antidotes should be used, and my duty was simply to treat the effects of the caustic upon the tissues with which it came in contact. This was done by making oily applications to the mouth and throat, and the employment of mucilaginous drinks, and an occasional aperient. We likewise ordered a light and unirritating diet. I supposed that the alkali had not reached the stomach, from the absence of the usual symptoms which would indicate a lesion in this organ. After ten or twelve days the child recovered from the immediate effects of the poison, and in a short time appeared to have regained its usual condition of health.

After the lapse, however, of three or four weeks, the child was observed to have some difficulty in swallowing, and most of the solid food it took began to be eructated. The trouble grew worse from day to day, and the patient was perceptibly losing flesh and strength; the parents supposed that the vomiting resulted from disease in the stomach produced by the potash, and were not much concerned about it. It was not until the 15th of November, two and a half months after the accident, that they became alarmed and again consulted me. The child was then weak and considerably emaciated. It had a craving appetite, and frequently asked for food. Difficulty was now experienced in swallowing fluids, such as milk, soup, and water. Sometimes they would reach the stomach, but more frequently after a given quantity was swallowed it would be thrown up. Solid food would be taken eagerly, swallowed, and almost immediately eructated. At one period of the twenty-four hours, sometimes in the morning, sometimes at night, sometimes at noon, liquids could be swallowed, reach the stomach, and be retained. The child could always tell when this time had arrived, and then she usually took about one pint of milk. This was the principal nourishment that sustained her.

It was made known to the parents that a stricture of the œsophagus probably existed, and that all the difficulty their child experienced was produced by this cause, and not by disease of the stomach. An examination with a gum-elastic bougie revealed the truth of this opinion, and the obstruction was found to exist about six inches, measuring from the incisor teeth down the œsophagus.

The case was commenced to be treated in the usual manner by dilatation with gum-elastic bougies. Repeated attempts were made with these instruments to pass the stricture, but we could not succeed with even the smallest sizes. Imagining the flexibility of the instrument prevented its passage, we employed small sized gum-elastic catheters with a wire stilet. These were equally unavailing, and after a number of trials for two or three days, we became well convinced that nothing could be accomplished with any of these instruments.

During this period the child was rapidly sinking. She could only occasionally swallow fluids as thin as water, and these in quantities not sufficient to supply the necessary wants of the system. Injections of soup were freely employed, but notwithstanding our patient was dying from inanition.

Dr. Samuel Cooper, in his article in the *Surgical Dictionary*, describes a ball probe made of ivory, that he used successfully in the treatment of this disease. From reading his account, the idea was suggested to my mind, that a set of probes could be made from whalebone, that would probably answer our intentions. The flexibility of the gum instrument unfitted that for our

purpose, and it seemed to us that the whalebone would have the requisite amount of stiffness. We accordingly had prepared from this material a set of ball probes of different sizes—the smallest about the dimensions of a No. 2 catheter. These were made progressively larger until they attained the size of the No. 9 instrument.

After repeated trials we succeeded in passing our smallest sized probe, and this was accomplished with no little difficulty. It required a great deal of careful manipulation. All the while our little patient was struggling and making violent efforts to vomit. At length the instrument unexpectedly passed with a jumping motion. There was no immediate improvement in swallowing, but in the course of an hour or two, the patient could swallow liquids much better than she had been able to do for some time previous. Next day we could pass the same instrument without much trouble. We tried a larger one, but did not succeed. Each succeeding day for three days we passed our No. 2 probe. After this we were able to pass our No. 3 instrument, and after each passage there was an improvement in the child's swallowing. She could by the seventh day swallow liquids at almost any period of the twenty-four hours.

There is a spasmodic element in this disease that interfered at particular times with our patient's deglutition, and no doubt always forms a great obstacle to the passage of instruments.

It would be unprofitable for us to narrate in detail all the circumstances attending the progress of this case. It will be sufficient for us to say, that we used successively our different sized instruments, until, about the 10th of December, we could pass our largest one, and that there was a progressive amendment in our patient's condition. She could swallow liquids at any time, and often took semifluid and even some kinds of solid food, such as soft baked gingerbread moistened with milk or water. She was rapidly regaining flesh and strength, and from a state of emaciation and extreme debility, she had by the early part of January, 1851, recovered considerable flesh and was able to run about the house. Her mind, heretofore entirely indifferent to everything, now showed a corresponding change, and she occupied herself with the usual amusements of childhood. At this period of our treatment we felt pretty sanguine of effecting a cure, and with the intention of still further dilating the stricture, we employed some large sized gum-elastic bougies. These, however, we never succeeded in passing beyond the stricture. They would reach the seat of the disease, and pass the distance of half an inch into it, but without using an unjustifiable amount of force we could urge them no farther.

This favourable state of things continued throughout the month of January. During the first days of February, deglutition was performed less easily, and sometimes our patient could not swallow at all. We were compelled to discard the use of all substances except those of a fluid consistence. The larger sized instruments I could not pass, and I was forced to use them successively smaller. Sometimes I was unable to pass even the smallest size, and when this was the case our patient could seldom swallow fluids of the thinnest consistence. The difficulty increased, and by the fourth of the month the passage seemed completely closed. I could neither pass an instrument nor could the child swallow a drop of water. Small portions would be taken, but almost immediately regurgitated. Soup injections were resorted to, but notwithstanding our patient was rapidly sinking. For five days we tried repeatedly, but in vain, to open the closed passage. Two or three times during this period, we supposed that some of the fluids attempted to be swallowed reached the stomach, but of this we were by no means certain. In our patient's condi-

tion, death was inevitable unless a passage could be obtained to the stomach, and every impulse of our heart constrained us to effect this by some means.

Three methods suggested themselves to our minds—first, to destroy the opposing stricture by caustic—secondly, to incise the stricture by means of a concealed cutting instrument—or thirdly, to force a passage with a stiff ball probe. After some consideration, however, we gave preference to the latter, as least likely to do mischief.

The whole case was fairly represented to the parents. On the one hand the danger of perforating the œsophagus was shown, and on the other death from starvation. They were not long in deciding. They not only sanctioned proceeding, but urged us to make the attempt.

We accordingly had a ball probe of small size and considerable stiffness prepared. This we introduced in the ordinary way, and employed not a greater amount of force than we were accustomed to use to dilate the stricture. After a few moments of steady pressure the instrument passed, and we supposed at the time had made its way through the stricture to the stomach, but it had ruptured the œsophagus. The stem of our other instruments was made very slim. They consequently had considerable flexibility, and this prevented our doing mischief with them. The child immediately swallowed wine and water, and continued to do so up to the time of its death, which happened on the 10th of February, about twenty-two hours subsequent to the rupture of the tube. No symptoms occurred previous to the death of the child that led us to suspect that the œsophagus had been perforated, and it was not known till revealed by the autopsic examination.

Permission was obtained to make a *post-mortem* examination of the diseased part only, and we were required to mutilate the body as little as possible. Externally the child presented an appearance of great emaciation. An entire consumption of the adipose tissue seemed to have taken place, and the outward indications all declared that death had occurred from inanition.

An incision was made over the sternum, and extended upward about one-third way on the neck, and downward into the epigastric region over the stomach. Our examination was hence confined to the thoracic contents, the stomach and œsophagus. In the thorax, outside of the œsophagus, we found no morbid appearances. The lungs themselves presented no trace of disease, but the right one was found in a collapsed state and completely surrounded by fluid. This consisted of wine, water, and soup, which the patient had drank for the last twenty hours, and probably amounted to one pint and a half. The fluid occupied the posterior mediastinum, and the space between the pleura costalis and pulmonalis of the right side. The heart was of normal size and appeared perfectly healthy. It contained blood in an uncoagulated state.

We next divided the œsophagus as far upward as we could reach without extending the cut upon the neck, dissected it out from its connections in the thorax, and, together with the stomach, removed it from the body. This tube was divided about two inches from its upper extremity, and we were thus prevented from examining the pharynx and that part of the œsophagus superior to the cut. After removing the œsophagus from the body, we laid it open in its entire length, and the ravages of the potash were at once presented to our sight. On its posterior aspect there was almost a continuous line, varying in breadth from the eighth of an inch to three-quarters of an inch, and reaching from the superior extremity to the stomach, that showed the track of the caustic. At some places the diseased action was extended more widely, and at one point, about two inches from the divided end, it had nearly embraced the whole circumference of the œsophagus. It was here that the

caustic produced its most powerful effect, and made the greatest encroachment upon the calibre of the tube. At this point it was narrowed to the dimensions of a crow-quill, and there was not more than a quarter of an inch of the circumference of the passage that was free from disease. This was the situation of the stricture. It extended in length from one-half to three-quarters of an inch. The disease was on the posterior and left side of the tube, and the encroachment on its calibre was from this direction. Anteriorly and to the right a small space remained unaffected by disease. Immediately above the seat of the stricture, and on the left, a small pouch was formed by adhesion of the diseased tissues. This no doubt oftentimes formed a lodgment for our probes and prevented their passage to the stomach. At the seat of the stricture it was the unaffected portion of the tube that we found perforated. The opening would have admitted a No. 5 catheter. Below the stricture we found the tube on its posterior aspect diseased continuously nearly to the stomach.

The potash, wherever it came in contact with the mucous membrane of the stomach, appeared to have destroyed it, and the sub-mucous tissue at the affected parts was much thickened and fibrous in its character. The mucous membrane did not appear to be regenerated. The surface of the disease at least did not present the ordinary characters of a structure covered by mucous membrane, for it was roughened and fibrous. Wherever the caustic touched the mucous membrane was disorganized, and an inflammation was set up that resulted in a deposit of lymph which assumed a fibrous organization.

We next laid open the stomach. This we found of its ordinary size, and containing about half a pint of fluid of a dirty colour, and having flakes of mucus floating through it. The mucous membrane was somewhat injected with blood, and presented here and there traces of inflammation. We discovered no appearances in the stomach that led us to believe that the poison had reached this organ. There was no destruction of mucous membrane—no fibrous deposit. There were no ulcers either in the stomach or œsophagus.

Remarks.—Some reflections naturally occur to the mind in connection with this case, and, among the first, are those associated with its cause. Stricture of the œsophagus has been known to arise sometimes spontaneously and without any assignable cause, but, upon inquiry, we find that by far the greatest number of cases have been produced by the action of some caustic substance. Potash and the mineral acids are the caustics that have most frequently given rise to the disease. Of these, caustic potash has, perhaps, produced stricture most frequently. The first application of this substance to the parts in question causes the destruction of the mucous membrane. The second step in the progress of the disease is the establishment of inflammation in the submucous tissues. As a consequence of this, we have an effusion of lymph, which becomes organized and encroaches upon the calibre of the tube. The inflammation once established perpetuates itself, for successive deposits take place and become organized until the œsophagus is finally obliterated.

Nitrate of silver, though frequently applied with a curative intention to the pharynx and upper part of the œsophageal tube, so far as we are informed has never been known to produce the disease. Nor has it produced

the disease, to our knowledge, in the urethra, or other similarly constituted passages. The kind of action set up by its application, we infer must be different from that produced by the other caustics enumerated.

The representations of this disease by diagrams in the books simplify it very much, and influenced by such teaching, the surgeon may often wonder why his instrument will not pass; but we are afraid these representations have no counterpart in nature. The post-mortem examination in our case, instead of revealing a regular narrowing, through which an instrument might easily be passed, showed diseased structure from the pharynx to the stomach, and, at one part, extending for the distance of half or three-quarters of an inch, an irregular narrowing of the tube by an encroachment from one side only. The entrance to this was difficult to find with an instrument, and when found, it was difficult to pass. The disease itself is, by no means, a common one, and we are led to believe that post-mortem examinations of it have been but seldom witnessed.

Our case was progressing favourably to a period within a few days before its fatal termination. We suppose that a new accession of inflammation, at this time, gave rise to an increased narrowing of the passage. This continued until we were finally unable to pass our smallest instrument.

Spasm, no doubt, of the affected parts, interfered to some extent with the transit of our instruments, but the examination proved that, at this time, it was mainly prevented by organic changes. It was before remarked, that spasmodic action constituted one element in this disease, and this, we think, will be readily admitted by any one who will reflect on the subject. In the early stages of the disease, our patient was able to swallow, at one period of the twenty-four hours, and not at another, and this was the case when we could not suppose that the passage was blocked up, either with solid food, or the secretions of the parts. We can only explain this symptom by supposing that spasm, at this time, was superadded to the other difficulty. The natural sensibility of the part is augmented, and the spasm is a reflex spinal act.

It was at the period above referred to, a few days antecedent to death, when our patient was entirely unable to swallow even liquids, and when she was in a dying condition, from absolute starvation, that we felt impelled to use some means for relief. Injections had been freely employed, but, notwithstanding, our patient was sinking. Four days had been spent in unavailing efforts to effect a passage to the stomach. In every aspect of the case, death seemed to be inevitable unless a passage could be procured. The circumstances not only justified us in transcending prescribed limits, but imperatively called upon us to act. We used force, and although we were not successful in our final attempt, yet we have the satisfaction of knowing that no effort was left undone, and that no justifiable expedient was left untried.

The examination after death furnished additional consolation, for it revealed a state of disease that was entirely incurable by art.

REVIEWS.

Art. X.—*A Practical Treatise on the Diseases and Injuries of the Urinary Bladder, the Prostate Gland, and the Urethra.* By S. D. Gross, M. D., Professor of Surgery in the University of Louisville; Member of the American Medical Association; Author of "Elements of Pathological Anatomy," etc. etc.—With one hundred and six Illustrations. Philadelphia, Blanchard and Lea, 1851. 8vo. pp. 726.

The object of this work, says its author, "is to present, in a systematic and connected form, a full and comprehensive account of the diseases and injuries" of the organs above specified. It is remarkable that no such work has hitherto been written in the English language—the more so since these affections are so often brought under the notice of the surgeon. The materials for such a treatise are abundant; they are to be found in the excellent, though incomplete, monographs of Brodie, Coulson, Parrish, in isolated papers by many other eminent surgeons of Great Britain and our own country, and in the numerous medical journals of both lands. Great attention has also been devoted to the affections incident to these important organs, by the surgeons of continental Europe. The task of combining and arranging into an harmonious and complete whole the mass of knowledge thus laboriously acquired and lavishly scattered abroad, could not have been committed to one more adequate to its successful accomplishment, than to the distinguished gentleman who has voluntarily assumed it. In addition to the ability and industry which would enable him to sift well the harvest of other reapers, to garner up the fine wheat and to reject the refuse, he has for years been himself an active labourer in a fertile field, and has largely added to the common heap. The result of his labours is this volume, replete with truths and principles of the utmost value in the investigation of these diseases.

The book is divided into three parts. The first part is devoted to the Diseases and Injuries of the *Bladder;* the second to those of the *Prostate Gland,* and the third to those of the *Urethra.* And in the *Introduction,* the anatomy of these organs is described in full; it contains also a chapter on the urine. Thus the author's treatise embraces a very wide range of subjects, not only those which are ordinarily comprised in systematic publications on surgery, but many others which are more rarely described.

We shall endeavour, by passing in review some of the most important of these topics, as herein discussed, to present our readers with a fair exposition of the merits and character of the work.

The first proper step towards a knowledge of the diseases and injuries of these organs, is the acquisition of their special and relational anatomy. To this important subject, Professor Gross has devoted much attention.

Medical students are too prone in their dissections to pass lightly over, or to neglect entirely, the disposition of the *fasciæ* of the various regions. Nowhere is an accurate acquaintance with the extent and arrangement of the fascial aponeurosis of more importance than in the perineum, both with reference to the lesions which occur accidentally, and to the operations which are practiced upon it. Our author, accordingly, dwells emphatically upon this

anatomical element of the perineum, and upon its influence, so long as it remains entire, in preventing the urine, when poured out from a ruptured urethra, from coming in contact with the tissues around the anus and the thighs. He describes it as "a thin, delicate, fibrous lamella, of a triangular shape, which is spread over the muscles of the perineum, and is firmly attached on each side to the outer border of the branches of the pubic and ischiatic bones. In front, it is prolonged upwards into the scrotum, where it appears to become continuous with the dartos; behind, it winds around the posterior margin of the transverse muscle, and is finally inserted into the anterior layer of the triangular ligament of the urethra. This membrane consists of a single lamella, the fibres of which are for the most part disposed transversely; it is thin, transparent, and pierced at various points by the branches of the pudic vessels"—p. 35. And after giving this commonly received account, he adduces the observations of Dr. Buck, of New York, a report of which was submitted to the American Medical Association in 1848, and published in the first volume of the *Transactions* of that body. These observations are to the effect, that the superficial fascia of the perineum is continuous above with the suspensory ligament of the penis, furnishes a sheath for the corpus spongiosum urethræ, and one for each of the corpora cavernosa.

We would not be hypercritical, but we would urge that the author's description would have been more satisfactory, if, instead of speaking of this tissue as though it began and ended with the perineum, he had described it as really continuous with the superficial fascia of the abdomen. The fascia superficialis abdominis may be followed over the lower anterior face of the abdomen to the groins, where it is closely connected with Poupart's ligament, thus separating the superficial femoral from the superficial abdominal region, and preventing urinary infiltration which may have gained the latter from invading the former surface: at the median line of the abdomen, this same fascia approaching from each side forms the suspensory ligament of the penis; it likewise contributes an investing sac to each testicle and to the cord after it has escaped through the anterior ring; it constitutes also a subcutaneous investment for the scrotum, then passes downwards over the perineum, affording a sheath for each of its superficial muscles, excepting the external sphincter ani, and, winding around the transverse perineal muscles, becomes intimately blended with the posterior edge of the deep perineal fascia, or triangular ligament of the urethra; laterally, it is also firmly attached to the rami of the pubis and ischium. For a lucid account of this fascia, and for beautiful representations of it, we would refer the reader to *Maclise's Surgical Anatomy*, part 4th.

The vascular peculiarities of the perineum are well detailed, and many other circumstances which closely concern the operations upon this region.

We pass over the very full chapters on the anatomy of the bladder, remarking merely, that the author seems to have bestowed much, and careful study upon these organs, with especial reference to their interest in the operations to which they are exposed. The illustrations attached to this part of the work will be found to be very good, many of them having been originally executed for this volume.

The description of the urethra is equally full. There has been much difference of opinion among anatomists concerning the real nature of the external tunic of the urethra. Dr. Gross describes it as "a thin lamella of cellular tissue, which serves to connect the tube to the subjacent textures. It is of an erectile spongy character, and is pervaded by a great number of

minute vessels, which impart to it a singularly striated aspect, not unlike fleshy fibres."

"This reddish vascular appearance, added to the contractile power of the urethra, induced Mr. John Hunter, and afterwards Sir Everard Home, to believe that this tunic was essentially muscular in its nature. The opinion of the former rests wholly on assumptions deduced from pathological facts and reasonings; that of the latter is founded upon minute microscopical inspections. From these it would appear, that the external membrane of the urethra is made up of short longitudinal fibres variously interwoven with each other, and united together by a soft elastic substance. How far these results are worthy of confidence, is a point not easily determined. The question is still open, notwithstanding the numerous attempts that have been made to settle it. That the substance under consideration is really muscular is altogether improbable, though there are few practical surgeons who will deny its contractile power in certain states of the urethra"—p. 83.

This question may now, we think, be considered as settled by the observations of Kölliker, a very distinguished and accurate investigator, and one every way worthy of confidence. His researches into the structure of the spleen and mucous membranes, his recent treatise upon the special anatomy of the tissues, and his miscellaneous contributions to the medical periodicals of his own country, have made his name a prominent one. According to Kölliker, the outer coat of the urethra is composed of contractile fibre mixed with common elastic tissue, and is similar to the contractile tissue, which he has demonstrated as entering into the constitution of the spleen and mucous canals. The relative proportion of the contractile, to the common elastic element, varies in different portions of the urethra, being least abundant where the ordinary muscular tissue exists in quantity. He terms it the *simple muscular tissue.* The arrangement of this anatomical element varies according to situation. It is most complicated in the prostatic portion of the canal, and in the prostate gland. This tissue is so abundant in the latter body, that the true glandular structure forms only one-third, or one-fourth, of the whole mass. If the mucous membrane be raised from the prostatic portion of the urethra, a layer of *longitudinal* fibrous tissue of a yellowish colour comes into view—

"Connected, internally to the sphincter vesicæ, by a thin and indistinct layer of fibres, with some of the longitudinal muscular fibres of the bladder; but by far the greater part of it is unconnected with this latter; it consists half of fibro-cellular tissue with many nucleus-fibres, and half of evident, smooth muscular fibres with characteristic nuclei. After this, and external to it, follows, secondly, a strong layer of yellowish *circular* fibres of muscular and elastic tissue. This layer is connected above with the sphincter vesicæ, where also it is most developed; whilst below, it becomes gradually thinner, and below the caput gallinaginis is either lost, or appears only in very small quantities. On removing the several muscular layers, we come at last to the proper glandular tissue of the prostate, of which individual lobes penetrate among the circular fibres just mentioned, their excretory ducts passing through the longitudinal fibres."

In the membranous part of the urethra this smooth muscular tissue is less developed; and here it is less requisite, because this part of the canal is surrounded by a distinct set of muscles. Under the mucous membrane, the cellular tissue of which abounds in elastic fibres, is a layer of longitudinal fibres connected with those of the prostatic portion.

"These fibres consist for the most part of fibro-cellular tissue with nucleus-fibres, and include, in small numbers, undulating, delicate, and curved contract-

ing fibre-cells (of the nature of smooth muscular fibres), which may be in part isolated, and are from 0.07 to 0.1 of a line long, from 1.002 to 0.003 of a line wide. They contain small nuclei from 0.012 to 0.014 long, and are more easily found in recent specimens than in those treated with acetic acid. External to these longitudinal fibres, there is a strong layer of transverse fibres, which belong mostly to the *musculus urethralis*. Some of these, however, especially those belonging to the inner layer, display some strong bundles of smooth muscular fibres, together with fibro-cellular tissue and nucleus-fibres, and a partial mixture of fasciculi of the transversely striated fibres of the *musculus urethralis*."

The smooth muscular fibres are still less developed, generally, in the spongy portion of the urethra.

"At a certain depth, however, some longitudinal fibres are distinguishable, with a more or less considerable admixture of smooth muscle, which fibres cannot be regarded as beams of the corpus spongiosum, since they have no venous spaces between them, but rather form a continuous membrane which limits the corpus spongiosum towards the mucous membrane." (Quoted from the *Cyclop. of Anat. and Physiol.*, Art. *Urethra*, p. 1251.)

We abstain from any comments upon the chapters devoted to the consideration of the *urine*, and of *malformations*, *imperfections*, and *injuries* of the Bladder.

The third chapter discusses the subject of *inflammation* of the bladder. The *symptoms* of inflammation of this viscus are detailed as fully as they are ordinarily described in general systematic treatises—more so than in the usual text-books. But in such a work as the one which we are now reviewing, and from the pen of Professor Gross, we had anticipated much more than this. We had hoped that he would devote some considerable space to the description of anomalous cases, and such as are complicated with disease in other organs; in short, that, from his long clinical experience, the author would contribute an amount of information which the active practitioner might apply to the elucidation of the difficult and complex cases of cystitis which are so often presented to his notice. The *treatment* is much more fully dwelt upon. The professor very properly insists upon the importance of prompt and free venesection. He says—

"There are few cases of acute cystitis which resist this means beyond the second or third day, and such as do are always more easily managed afterwards by mild treatment. I have repeatedly cut short, by the lancet alone, attacks of this disease so severe as to leave the patient no rest, and so threatening as to induce the worst apprehensions for his ultimate recovery. The same treatment has often promptly succeeded in my hands after other and less efficient means had been employed for days with little or no benefit"—p. 125.

This powerful remedial measure is not, however, to be indiscriminately employed, but with regard to the age and general condition of the patient and the duration of the attack. Neither does the author restrict its employment in the more severe forms of the malady which are accompanied with great constitutional reaction, but finds it equally applicable and advantageous in those which are attended with trifling general disturbance. In addition to this agent, the necessity of free evacuation of the bowels by cathartics and enemata is urged, avoiding such as are disposed to produce much irritation of the rectum. Diaphoretic medicines are also advised, particularly tartar emetic, Dover's powder, and an effervescing draught, according to the grade of the symptoms and the condition of the stomach. Diuretics are to be given cautiously; such as are very stimulating are to be avoided. The local means most highly re-

commended are topical bleeding, anodyne enemata, or suppositories, warm fomentations and the hip-bath. Judicious modifications of this general plan of treatment are suggested in cases of cystitis produced by the presence of foreign substances in the bladder, by cantharides, gout, &c. &c. With regard to "*direct medication*," the author is of opinion that "it is more likely to do harm than good. It is only in the latter stage of the disease, when the acute symptoms have disappeared, that such a course would be at all admissible, and then it could hardly be required." With these sentiments we are sure that all judicious men will concur.

The reader will find in the other sections of this chapter interesting descriptions of forms of disease which, although they are happily rare, do sometimes occur, involving great suffering on the part of the patient, and anxiety on the part of the physician. These are "fibrinous exudation of the bladder, suppuration and abscess, gangrene and ulceration." The author's account of these morbid processes and conditions is rendered more valuable in consequence of the recital of numerous illustrative clinical cases.

One of the most complete chapters in the volume is that on catarrh of the bladder. Dr. Gross denies the necessity of distinguishing two varieties of cystorrhœa, the acute and the chronic, inasmuch as the acute form "does not differ in any respect from ordinary acute cystitis, described in a preceding chapter." He therefore describes the affection as being chronic. The same view is taken of this subject by Dr. Wood in his excellent work on the Practice of Medicine, who treats of this disease as a *chronic cystitis*. Practically, this view may be sufficiently correct, the symptoms of cystorrhœa, whether in the acute or the chronic stage, demanding pretty much the same medication as those of ordinary cystitis of the corresponding grade. But pathologically considered, it seems to us that there is a difference between catarrhal inflammation and common inflammation of a mucous surface. The distinction may be best seen in the two affections of the conjunctiva; where, we think, the appearance of the vascularity, the alteration in the physical condition of the membrane, the character of its secretion as to aspect and the possession of contagious or non-contagious properties, are materially dissimilar from their commencement respectively. And if this be true of the conjunctiva, why not also of the mucous membrane of the bladder? In what especial particulars this difference consists we are not prepared to say. However this may be, the description of chronic vesical catarrh, as given by Dr. Gross, is very complete.

He says, "Cystorrhœa is always dependent, directly or indirectly, upon some obstacle to the evacuation of the urine, or upon a diseased condition of the bladder itself. Hence the most common exciting causes are stricture of the urethra, the presence of a calculus, hypertrophy and enlargement of the prostate gland. Paralysis of the bladder, whether produced by over-distension of the organ by urine, or by injury or disease of the spine, frequently gives rise to this state. The muscular fibres having lost their expulsive power, the water is never completely evacuated at any one time, even when the catheter is used, but a portion remains in the bottom of the bladder, where it is speedily decomposed, and acts as an irritant to the lining membrane, followed by an inordinate secretion of mucus. Cystorrhœa is a constant attendant upon sacculation, ulceration, hypertrophy, and carcinoma of the bladder. When the affection is once established, it may easily be aggravated or re-induced by exposure to cold, exercise on horseback, sounding, venereal excesses, drastic purgatives, indulgence in ardent spirits, stimulating food, irritating injections, diuretic and other remedies, as turpentine and cantharides, over-distension of the bladder, neuralgia, retrocession of gout, repulsion of cutaneous eruptions, local injury and disease of the adjoining parts, as the anus, rectum, vagina, and uterus."

The progress of the disease is then described, and its symptoms are detailed in a very satisfactory manner. The following quotation possesses some interest:—

"Patients affected with cystorrhœa are sometimes impotent, even if they are comparatively young. I have met with several instances of this kind. In one remarkable case, the gentleman, forty-four years of age, had experienced no sexual desire for upwards of six years, though he was naturally of an amorous disposition. His penis had become soft and flabby, and had not been in a state of complete erection for a long time. He had occasional emissions, but they were always unaccompanied by the proper feeling. Owing to the frequent micturition which forms so striking a feature of this disease, and the severe straining which usually attends it, catarrh of the bladder is often complicated with hemorrhoids, prolapsion of the bowel, swelling of the testes, and even with hernia."

The *diagnosis*, remarks the author, involves the distinguishing of this complaint from seminal emission, gonorrhœa, and suppuration of the bladder; and this cannot be a very difficult task.

Passing over the observations upon the prognosis and the anatomical appearances, we are brought to those concerning the *treatment* of cystorrhœa. The cause of the disease having been ascertained, and if possible removed, the medication which the author advises consists in the local or general abstraction of blood, mild purgation, and the employment of certain internal remedies which act upon the kidneys and modify the character of their secretion. Of the latter substances, the author most approves of the balsam of copaiva in the dose of from ten to twenty drops repeated three or four times daily. Besides this, the turpentines are advantageous, as also the infusions of buchu, uva ursi, epigœa repens, the muriated tincture of iron, colchicum, benzoic acid, &c. &c. Among the direct applications are enumerated tepid water, introduced by a double-chambered catheter which will permit the fluid to enter the bladder through one side and to escape by the other, and various astringent and sedative solutions. With regard to cauterization by means of the solid nitrate of silver, the author has made trial of it in a few instances, but does not think it effected any decided impression upon the disease. He thinks it chiefly applicable to those cases which are dependent on inflammation of the neck of the bladder, accompanied with an unusual degree of sensibility.

"In obstinate and intractable cases of cystorrhœa, where all other remedies have failed to afford relief, it has been proposed to penetrate the neck of the bladder by means of an incision similar to that made in the lateral operation of lithotomy. The object is to afford a free outlet to the mucous secretion as fast as it takes place, and to put the organ thereby in a state of comparative repose. In a word, the principle is the same as in the operation for anal fissure and fistula. The wound is not permitted to close too soon, and yet care is taken lest it become fistulous."

A case is then detailed in which this operation, originally suggested by Mr. Guthrie, but first performed by Dr. Parker, of New York, was executed by the latter. After much previous and protracted suffering on the part of the patient, and a variety of medical treatment,

"Dr. Parker was induced to perform the lateral operation on the 23d of November. The incision was quite free, and was followed by the loss of about sixteen ounces of blood. For the first twelve hours the patient experienced severe pain in the bladder, urethra, and left thigh, but this gradually yielded to the liberal use of anodynes. A very decided improvement of the former symptoms soon became apparent; the pulse diminished in frequency; the urine passed off freely by the wound; the patient slept better, and for a time he

seemed in a fair way of recovery. About the end of the third week, however, he became worse; his strength now rapidly declined; the vesical distress increased, and he began to exhibit all the evidences of a poisoned state of the system from the retention or absorption of urea. He continued in this manner until the 24th December, when he expired, death having been preceded by delirium and coma."

Besides the diseased condition of the bladder, the kidneys were found affected, one enlarged and congested, the other small and filled with tubercular matter; both lungs also contained tubercles; in the left was a cavity. This case was, consequently, an unfavourable one for the operation; but Dr. Gross says—

"I shall certainly not hesitate to resort to it the first favourable opportunity that may present itself to my notice. The operation, it seems to me, is particularly applicable to that form of cystorrhœa in which there is marked hypertrophy of the prostate gland and the muscular coat of the bladder."

We confess that we are not a little surprised to meet with such decided commendation of this expedient from Professor Gross. We find him teaching, at page 425, when speaking of *lithotomy*, that

"No surgeon, having a proper regard for his own character and the dignity of his profession, would be likely to operate in case the patient is affected with organic disease of the lungs, or of any other important viscera. Serious lesion of the *kidneys*, *ureters*, *bladder*, and *prostate gland* also forbids interference. In short, wherever the health is much impaired by previous suffering, not solely dependent upon the presence of the urinary concretion, the judicious surgeon will hesitate not a little before he will resort to the knife."

Again, in his enumeration of the morbid appearances found after death from cystorrhœa, he says, p. 169:—

"After some time" (and we presume that this limitation must certainly apply to the 'obstinate and intractable cases of cystorrhœa, where all other remedies have failed to afford relief,' p. 177, for which the author considers the operation in question recommendable, and '*the credit*' of doing which he awards to Dr. Parker), "the muscular fibres become hypertrophied. The cellulo-fibrous lamella is also much thickened, as well as increased in density, and the mucous membrane, particularly that portion which corresponds with the bas-fond of the organ, is often thrown into large heavy ridges. In some instances the lining membrane is ulcerated, covered with patches of lymph, or protruded across the muscular fibres in the form of one or more pouches. The walls of the bladder are frequently five or six times the natural thickness. The kidneys, ureters, and prostate gland are generally implicated in the mischief, sometimes to a fatal extent."

Now, as it is not the mere presence of the stone in the bladder, but rather the diseased condition of this and other associated organs, which constitutes the objection to lithotomy, why should it be considered any the less improper to open the bladder in a case of cystorrhœa, in which the organ is not fretted and inflamed by the continued irritation of the calculus, and by the removal of which, in the other case, one important element in the morbid condition of the parts would be withdrawn?

We cannot reconcile these conflicting statements, neither can we at all unite with Professor Gross in commending this operation under any circumstances. Cases of moderate severity and duration will not require, and those of long continuance and unusual aggravation will, in the vast majority of cases, and of necessity, die from this "*ultima ratio.*"

The next subjects treated of are the "*bar-like ridge of the neck of the bladder,*" a peculiar form of local hypertrophy of this organ, first particu-

larly described by Mr. Guthrie; and *sacculation of the bladder*, like the other a consequence of any long-continued obstruction to the discharge of the urine.

The *fifth* chapter discusses the nervous affections of the bladder, comprising *irritability*, *neuralgia*, and *paralysis* of the viscus. These are all exceedingly interesting affections, requiring for their successful and rational treatment considerable diagnostic skill and therapeutic knowledge. The author seems to have had frequent opportunities of studying these diseases, and his views concerning them will well reward a careful study.

In the succeeding chapter, he describes the *heterologous formations of the bladder*, scirrhus, encephaloid, colloid and melanosis, and tubercular disease. After this follow chapters on polypous, fungous, erectile, and other morbid growths of the bladder; on worms; serous cysts and hydatids; fœtal remains; hair, and air in this organ. Another treats of hemorrhage of the bladder. The chapter on *retention of urine* is very well written. The remarks upon the diagnosis of this condition are worth a careful perusal.

"One would suppose that retention of urine could seldom, if ever, be mistaken, when we consider its mode of origin, progress, and symptoms, which are usually sufficiently characteristic. Yet, strange as it may appear, some very singular as well as very unfortunate blunders have been committed, in this respect, and that, too, by men who, from their skill and experience, ought to have known better. The affection with which it is most liable to be confounded is ascites, or dropsy of the peritoneal cavity."

And in the sequel some apposite cases are quoted. Retention of urine has been confounded, too, with a "supra-pubic abscess." And, inasmuch as pregnancy has often been mistaken for ascites, and by very distinguished physicians, and the error has even proceeded so far as actually to lead the surgeon to tap the swollen part, we should suppose that retention of urine may be just as well confounded with this condition of the uterus, or *vice versâ*. The points to be attended to in the diagnosis are sufficiently detailed by Dr. Gross to enable any one of ordinary discrimination, and particularly if he be upon his guard, to avoid so egregious and discreditable an error. The *treatment* of course consists in emptying the distended viscus by the aid, if possible, of the catheter. The author advises, very properly, that a portion only of the fluid be removed at once, if the quantity be at all considerable, in order that the bladder may have time to recover its tone, and that the pressure to which the abdominal and thoracic organs have been so long subjected shall not be too suddenly removed. He enumerates the most common causes upon which retention of urine depends, and by the cure or withdrawal of which a permanent recovery may be gained. The first class of causes affects the urethra, the bladder, or the head of the penis. To the first mentioned seat of the obstruction belong organic stricture, a calculus, clotted blood, coagulating lymph, inspissated mucus, or an enlarged mucous follicle, and, in the female, the mal-direction of the urethra; moreover, the obstacle may be exterior to the canal, as a simple or malignant tumour, an abscess, a collection of blood, a boil, or an ordinary swelling from contusion, any one of which may produce temporary obliteration of the channel, by the mere pressure which it exerts at some point. To the second appertains hypertrophy of the prostate, or the presence of some earthy or animal concretion, or any tumour within the pelvis of sufficient size to press upon the neck of the bladder. In the last category are included an imperforate prepuce, priapism, &c. These and other causes of retention, and the treatment, are ably expounded.

The other two sections of the same chapter are very appropriately taken up with observations upon the two expedients most commonly resorted to for the purpose of overcoming the difficulty with which we have just now been occupied; these are catheterism and puncture of the bladder. The first of these occupies a brief space in the author's volume. We cordially concur with him in his view of the importance of this apparently simple operation, and the very great skill which is requisite to perform it well. We should have been better pleased to be favoured with a much more extended consideration of the subject from one whose ideas concerning it are so correct, so far as he has expressed them, and whose practical skill in manipulating with the catheter, is, we have no doubt, so great. The directions which he gives, however, seem to us to apply only to the ordinary cases in which a surgeon is called upon to empty the bladder, and to leave untouched the only really troublesome instances which occur to him; the only ones with reference to which he would think it worth while to consult those whose ingenuity and tact are superior to his own. We know that, no matter how many additional pages Professor Gross had devoted to this point, no matter how lucid and comprehensive his lessons, the reader could not from all have acquired the delicacy and the dexterity which alone can enable him to accomplish his purpose in employing the catheter. Still it would have been satisfactory to him, no doubt, to find in this treatise that the whole ground had been thoroughly gone over.

Puncture of the bladder for the purpose of emptying it of its contents is very rarely requisite. Professor Gross says of it:—

"It is only in cases of excessive enlargement of the prostate gland, attended with great tenderness and swelling of surrounding parts; in laceration of the urethra, and infiltration of urine into the scrotum; and in deep-seated, impassable stricture that the operation should even be seriously thought of. All other forms of retention will, there is reason to believe, yield to the catheter, aided by time and by soothing measures."

Dessault performed the operation but once during the eight years of his chief surgeonship of the Hôtel Dieu. Mr. Liston had resorted to it only once, so late as 1846. Sir Benjamin Brodie says:—

"Surgeons who see a great number of cases of retention of urine may, in the course of their lives, be called on to perform it in a *few* instances. Those who perform it frequently must often perform it unnecessarily; at least, this is what I should say, judging from my own experience."

Professor Gross has never performed it, though he gives the accounts of two cases, in which he was upon the point of executing it, when the patient in each instance was relieved in an easier and safer manner—one spontaneously, the other by the catheter. The merits and the way of accomplishing the three principal modes of opening the bladder, viz., through the rectum, perineum, and the supra-pubic region, are narrated in the text. From a review of M. Mondière's table of ninety-two cases of puncture of the bladder, the professor infers that

"The recto-vesical operation is less fatal than either of the others; but that it is more liable to be followed by fistula, infiltration, and abscess. As respects mortality, the perineal and supra-pubic punctures are about on a par. The proportion of fatal cases to the number of recoveries is remarkably small." (Vid. *Am. Journal Med. Sci.*, vol. iii. 495.)

The 15th, 16th, and 17th chapters are devoted respectively to the subjects of *incontinence of urine*, *hernia of the bladder*, and *urinary deposits*. These are succinctly, but comprehensively, treated of.

We have now reached in our cursory review of this interesting volume, the all-important topic of *stone in the bladder*, to which the preceding chapter has very advantageously cleared the way. To this subject, the author has devoted more than 170 pages. The chapter is subdivided into sections, each of which discusses some special point in the pathology of calculus: first, its nature and causes; second, its physical and chemical properties; third, its situation; fourth, its occurrence among the inferior animals; fifth, its symptoms; sixth, its physical signs, sounding and diagnosis; seventh, its pathological effects; eighth, its treatment, embracing a description of all the operations practiced for its removal from the bladder. The entire subject has evidently been very carefully studied, and the reader will find here presented to him a very complete exposition of the matter. We do not think that any thing is said which can with propriety be objected to, while the essay, for such it really is, abounds with important truths. We shall make an extract from the text, here and there, as we turn over the leaves, instead of attempting any formal commentary upon so familiar a subject.

In speaking of the nature and causes of stone in the bladder, he says:—

"Coloured persons appear to be remarkably exempt from calculous complaints. Whether this is the case in all countries where the negro resides, I am not informed; but it is certain that the circumstance obtains, in an eminent degree, in the black population of the southwest. During a residence of ten years in Kentucky, I do not recollect to have met with a solitary example of gravel or stone in a coloured person. My impression is that Dr. Dudley, in his large calculous practice, has never cut more than two or three individuals of this description. To what this immunity is due, our knowledge does not enable us to determine. The circumstance is so much the more surprising, when it is remembered that the coloured people of that region are constantly exposed to hard labour, and that their fare is often of the coarsest character."

This is a very interesting fact, and it may be owing to the very circumstances mentioned, viz.:—

"That the coloured people *are* constantly exposed to hard labour, and that their fare *is* often of the coarsest character."

Probably their fare is never luxurious, or but in very exceptional cases; and this, together with the constant, though by no means exhausting labour (for we believe it is almost universally conceded that the slave very rarely works so hard, or accomplishes so much in the same space of time, as the white labourer), to which this class of our population is subjected, are precisely the conditions which are the most likely to protect one from calculous complaints, and to counteract the calculous diathesis.

The relative frequency of calculus in children and adults seems to be a subject of doubt.

"Of 5,376 cases mentioned by Civiale, in his treatise on calculous affections, 2,416 were children, 2,167 adults, and 793 old persons." But among 1,151 children admitted into the Foundling Hospital, London, during 27 years, only *three* cases of stone occurred; in the Military Asylum, at Chelsea, in 6,000 inmates not one case; in the Hôpital des Enfans, Paris, where 3,000 children are annually received, during the seven years from 1835 to 1842, the average number of cases *has been under four;* at the St. Marylebone Workhouse, where there have been on an average during many years between 400 and 500 children, there *has not been a single case* of stone during the last twenty years. The returns from different countries show a great difference in this respect.—(*Brit. and For. Med. Rev.*, vol. xiv. p. 165.)

Of	356	operations reported by	Dupuytren,	only	97	occurred in children	under	15.
"	1,629	"	Saucerotte,	"	1,195	"	"	"
"	478	at Norwich, "	Marcet,	"	227	"	"	"
"	666	" Naples, "	Renzi,	"	315	"	"	"
"	643	" " "	"	"	321	"	"	"
"	469	" St. Petersburgh,	. .		357	"	"	"
"	175	" Austria,	. . .		55	"	"	"
"	239	" Bavaria,	. . .		116	"	"	"
"	106	" Bohemia,	. . .		28	"	"	"
"	145	" Denmark,	. . .		14	"	"	"
"	42	" Egypt,	. . .		1	"	"	"
"	2,822	" France,	. . .		1,347	"	"	"
"	1,058	" Lombardy,	. . .		796	"	"	"
"	49	" Rome,	. . .		10	"	"	"
"	140	" Sardinia,	. . .		97	"	"	"
"	127	" Ulm, .	. . .		64	"	"	"
	9,144		. . . . .		5,040			

The following observations are very appropriate :—

"How far the constant use of hot bread, biscuit, and pastry, which are consumed in such enormous quantities in this country, especially in the South-western States, conduces to bring about calculous disorders, we have no means of deciding. That the daily employment of these articles is prejudicial, no one can doubt. Their influence in producing dyspepsia, so common in every part of the Union, is familiar to every observer, and need not, therefore, be discussed in this place. Hot bread in its various forms, frequently only half baked, and generally but half masticated before it is swallowed, is sufficient, if used for any length of time, to wear out the strongest stomach, and to break down the most vigorous frame. What the effects of such a state of the system must be upon the urinary secretion, every pathologist knows. A weakened digestion, with a sour and flatulent state of the stomach, constipation of the bowels, and an irritable condition of the brain, cannot by any possibility produce a healthy blood, any more than a morbid state of the blood can produce a healthy urine."

This is all true, as every one will admit; and one might write a very amusing, or a very serious, commentary upon it, as the spirit prompted at the moment. It is melancholy to see how these vicious practices have in this country seized upon all classes and all ages. People seem determined to continue in error, in some one of these respects at least. Where "the raw material" is of the best description, it is almost always spoiled in the preparation for consumption; and when this is not the case, it is sure to be, as Professor Gross says, "but half masticated before it is swallowed." The last habit is forced upon the young by domestic regulation, and when these grow up to manhood, it is still retained from the fancied pressure of business, or from the more inane force of custom. We have repeatedly been called upon to administer an emetic to children in one of our largest and best regulated public institutions, where dinner *must* be despatched in a given limited time, for the purpose of relieving their stomachs from the *large masses* of unchewed meat and potatoes, which had produced convulsions. And every one whose views of social enjoyment and the process of nutrition are at all what they should be, must often have seen with amaze and regret how rapidly dinner disappears from the tables of private families and of our best city hotels; where gentlemen and ladies devour their food as greedily and impetuously as famished beasts their prey, their faces wearing the same expression of anxiety and thought as when they are considering some weighty matter of business, or some important domestic responsibility, entirely forgetful or ignorant that, for sanitary as well as social benefits—

"Rien ne doit déranger l'honnête homme qui dine."

The physical and chemical properties of calculi, and the various circumstances attending and modifying their situation in the bladder, are narrated at considerable length; and many interesting notices are introduced of their existence in the bladders of inferior animals, of birds, fishes, and reptiles. We need make no comment upon these sections of the volume, nor upon the detailed account of the symptoms of stone. We must call especial attention, however, to the author's remarks upon the physical diagnosis of this affection, as we think them very excellent. He directs how and with what kind of an instrument the "*sounding*" of the bladder should be performed; enumerates the dangers attending or resulting from this operation, if badly done, or executed under unfavourable circumstances; describes the phenomena elicited by the instrument, and their variations under different conditions; he also details the many sources of error in sounding, and explains how these errors may be occasioned; and finally shows how a calculus may really be present in the bladder, and yet give rise neither to characteristic physical phenomena upon sounding, nor to rational symptoms.

The *pathological effects*, or, to speak more correctly, we conceive, the *anatomical* lesions, produced by the existence of a stone, are next pointed out, and then follows the section upon the *treatment*.

This subject naturally occupies a large part of the author's attention. He has spared no effort to make this portion of his treatise complete, and it affords us great pleasure to express our satisfaction at the result of his labour. We are presented with an ample account of the regimen to be pursued, and of the medications which have been found most serviceable; of the plan of dissolving the calculus by means of injections into the bladder, and by the agency of electricity; of the method of removal of entire calculi through the urethra; of lithotripsy, the modes by which this proceeding is accomplished, the conditions favourable to it, and those which preclude it, the dangers attending it, and the accidents produced by it. We will stop for a moment in our enumeration of the prominent topics discussed, to quote a few lines. Professor Gross says, at page 418:—

"I can perceive no reason for administering chloroform in this operation, except in the case of children. On the contrary, I think it ought generally to be avoided. For, independently of the fact that the operation is usually unattended with much pain, it is a matter, I conceive, of no little importance that the patient's mind should be perfectly clear, in order that he may promptly inform the surgeon of his suffering, should any arise, whether from too rough a manipulation, too great a size of the stone, or the seizure and inclusion of the mucous membrane of the bladder. Such contingencies may, it is true, be remote; but it is well enough to be aware of them, and to guard against their occurrence. In children, on the contrary, who are unable to give any satisfactory intimation of their real feelings, anæsthesia is of great advantage. They are saved from suffering, and being rendered perfectly quiet and tractable, the surgeon may deliberately proceed with his manipulations, satisfying himself by a thorough examination of every part of the bladder."

We are glad to find that the opinion which we expressed on this question in our remarks upon Mr. Skey's *Operative Surgery*, in the preceding number of this Journal, are so authoritatively confirmed. We are not prepared to admit, however, that even in the case of children, who are about to undergo the operation, anæsthesia is expedient; for we conceive that it is just as important to avoid injuring a child's bladder as an adult's, and therefore equally unwise for the surgeon to deprive himself of the warning which the child's sensitiveness to injury may furnish him; but in the preparatory sounding of

either adults or children, if the operation be painful, or excite much alarm or agitation, we see no objection to resorting to this calmative agent, but would rather recommend it.

The operations of *lithotomy* are next described, and the circumstances relating to this procedure are exhibited, as in the case of lithotripsy, viz., the instruments which are most serviceable, the mode of operating, the incision of the prostate, the accidents which are liable to complicate the operation, and the means of counteracting or preventing them. The author prefers the lateral operation, and gives an exceedingly interesting series of his own experiences with it, twenty-four in all, which were all successful. He generally employs the scalpel, rather than the gorget; though sometimes he uses an instrument resembling the beaked-knife of Sir William Blizard. The merits of the three instruments are the subject of a few comments. But while the author prefers the lateral operation, he canvasses very fairly the claims of the other methods of cutting into the bladder—the bilateral of Le Dran, the quadrilateral of Vidal de Cassis, the recto-vesical of Sanson, and the suprapubic or the high operation. The operation of *lithectasy* is likewise adverted to—viz., making an opening into the urethra through the perineum, smaller than in ordinary lithotomy, and slowly dilating the neck of the bladder until the aperture is sufficiently capacious to admit of the passage of the foreign body. We have also an account of the operation "*en deux temps*," as it is called, one portion of the procedure having been accomplished, but the whole not executed until after the lapse of some time, the patient having recovered from the effects of the first stage, or some obstacle which existed to the completion of the undertaking having been removed. The subject of stone in the bladder is concluded by some observations concerning the complaint in the female and the methods of relieving her. In fine, we do heartily assure our readers that they will find this whole matter most admirably treated of by Dr. Gross.

The first part of the book is completed by some sensible comments upon foreign bodies in the bladder.

The second part is allotted to the consideration of injuries and diseases of the *prostate gland*. We pass over the chapter upon *wounds* of this body, and that referring to *inflammation* of the same, together with certain conditions of this organ, which usually originate in prostatitis—abscess and ulceration.

Hypertrophy of the prostate is considered in the third chapter. The author dissents from the opinion of Home and others, that the left lobe of the gland is more frequently involved than the right:—

"The opinion is not borne out by the results of dissection, and no reason, anatomical, physiological, or pathological, can be assigned for the occurrence, supposing it to exist."

This is probably the truth. Rokitansky says:—

"The lateral lobes are the chief seat of the enlargement, which affects both uniformly, or predominates on one side."

The details of the modifications in form, dimensions, and internal structure which this exaggeration of the nutritive process impresses upon the gland are ample, and are well illustrated by many original drawings from nature. Two varieties are described: one in which the body is rendered preternaturally hard, so that the tissue tears with difficulty, and opposes considerable resistance to the scalpel; the other, more soft and vascular, and usually larger. In both, when the gland is cut or torn, numerous granulations are seen scattered over the surface, more abundant in the soft than in the hard variety, and con-

taining a milky fluid also more copious in the former than in the latter. The intimate nature of hypertrophy of the prostate does not seem to have been sufficiently investigated. Rokitansky's account is very unsatisfactory. He says:—

"The substance of the gland in these cases appears normal, occasionally a little softened, of a spongy elastic consistency, and succulent, *i. e.*, its ducts contain much secretion; in other cases it appears tough and coriaceous, without visible alteration of structure. The formation of fibrous tumours is often complicated with this benignant variety of enlargement."—*Path. Anat.* vol. ii. p. 257, Syd. ed.

C. Hanfield Jones, in a paper on the prostate gland, published in the *London Medical Gazette*, vol. v. p. 328, describes the terminal follicles of this body as being

"Each, for the most part, invested and separated from the adjacent ones by a quantity of connecting tissue disposed in fasciculi, which are closely woven together, and include spaces which are occupied by the glandular structure; it consists principally of the white fibrous tissue, but also contains numerous bands resembling closely those of organic muscle."

And he thinks that in senile hypertrophy of the organ, this fibrous tissue becomes especially increased, thereby producing the granulated appearance seen on cutting into the gland, and the knobbed condition of the surface which sometimes exists. Professor Gross adopts this opinion. It is probable, however, that in many cases there is a real development of true glandular structure, lobes, lobules, and acini, as well as of parenchymatous tissue; but we should presume, without having any positive data to predicate the opinion upon, that such a development is more frequent in that variety of prostatic hypertrophy which occurs before old age, from irritation and increased vascularity of the organ, and not in advanced life, when the growth of the higher grades of tissue is much less active, and when those of inferior anatomical and physiological importance predominate. This view is rendered more probable, too, by the difference in colour of the gland in senile hypertrophy, as compared with that which is observed earlier in life; in the former it is of a grayish or drab tint, in the latter the red predominates, showing a greater degree of vascularity in the last.

The author's remarks concerning the causes of this affection, the periods of life in which it is met with, its progress and symptoms, are valuable, and, we believe, very correct, though different in many respects from the currently received views. And his observations on the diagnosis of the disease, and the morbid connections which it establishes with other organs, are equally commendable. He pretends to no peculiar success in the *treatment* of this troublesome and painful malady—of the senile variety, at least—but makes the reader aware of all that can be done, and how to accomplish it.

The remaining pages of this part of the book are taken up with sufficiently extended notices of the less common affections of the prostate.

The third and last portion of the volume is devoted to the *diseases and injuries of the urethra*. It is not necessary for us to follow the author through the whole of this chapter. For, from what we have seen of the book, we can assure our readers that he has not slurred over any important topic, but has given a fair consideration to all. We shall, therefore, examine only a very few of the chapters which remain. We may remark that we do not see why he should have omitted all consideration of *inflammation of the urethra*. This is a disease which would be benefited by particular study, for certainly there is none in the whole category of acute inflammations which is more troublesome and perplexing in its treatment.

The investigation of the pathology and treatment of *stricture of the urethra* is the object of the third chapter of this part of Professor Gross's valuable work. He divides strictures into the *spasmodic* and the *organic;* but limits his observations to the latter. We do not see any reason why spasmodic stricture should have been neglected in such a treatise as this, rather than neuralgia of the urethra and of the bladder, to each of which a chapter has been allotted. It is surely a very distressing and troublesome affection, one which requires proper treatment, and which is very much benefited by wise measures, as well with reference to its permanent prevention as for its present relief. And we think its due consideration is of the greater consequence, inasmuch as it can scarcely fail, if its visitations are frequent and protracted, to induce a permanent thickening of the mucous membrane of the urethra by the considerable nervous and vascular excitement which these paroxysms occasion. Moreover, the analogy between the lining membrane of the urethra and other mucous membranes, as well as accurate observation of the affection in question, render it almost certain that a frequent cause of the spasmodic stricture is a greater or less degree of evanescent vascularity of the tissue, which may become, by a very easy transition, a permanent condition.

Organic stricture may, according to the text, be either simple or complicated, common or traumatic, partial or complete, soft or callous, dilatable or undilatable, permeable or impermeable, recent or old. As to its *seat*, the author admits that "no part of the urethra, except, perhaps, the prostatic, is entirely exempt from organic stricture." But this exception is not a positive one, although it is undoubtedly true that the prostatic portion of the canal is very rarely affected. Ricord, however, has seen this portion of the urethra narrowed, independently of the prostate, and a similar case is cited by Mr. Crosse, of England, p. 616. The most common point of coarctation is variously stated by different authorities, as Dr. Gross remarks. He says from his own experience, he infers that

"The affection is most common, first, in that portion of the canal which is comprised between the scrotum and the head of the penis; secondly, at the membranous part of the tube, or at the junction of this with the bulbous part; and, lastly, at the anterior extremity, within a few lines of the meatus. I have never seen a stricture at the prostatic portion of the canal, and therefore conclude that it must be exceedingly rare here, if indeed it ever exists"—p. 616.

With reference to the *number, form, consistence, colour, and symptoms* of organic strictures, we see nothing in the text which need detain us.

In conducting the *physical exploration* of the urethra, to establish a correct diagnosis, the author prefers the use of a common silver catheter, of moderate size and a little conical at the extremity, and where greater accuracy is requisite a wax bougie; he also is disposed to think favourably of the gutta percha bougie, suggested by Dr. Bigelow, of Boston, which should be introduced sufficiently warm to receive and retain the impression of the stricture into which it is passed. He does not attach much value to examinations made in this manner for the purpose of ascertaining the form and dimensions of the obstruction. Whatever may be the instrument employed for the exploration, the necessary caution is strongly inculcated.

"All examinations of this kind should be conducted with the greatest gentleness and deliberation. All rough and hasty proceedings are calculated to do harm, by exciting spasm and irritation, and should, therefore, be carefully avoided. By slow and cautious manipulations, the point of an instrument may often be insinuated into the tightest stricture, or into one so tender and irritable as to resent every attempt of an opposite description"—p. 625.

The effects of continued stricture of the urethra upon this canal itself and other organs, adjoining or remote, are described in several pages. The only objection which we find against this portion of the author's narrative, and we venture to urge the same criticism against his exposition of the *symptoms* of stricture, is that it is somewhat deficient in force of expression. We believe that his statements are strictly correct, and that he exhibits a very full view of the subject; but we think that the truth will bear a much warmer tinting. The colours are all here, but they are not so artistically arranged and combined as they might have been. There is as much difference, in this respect, between our author's picture and that which Brodie has drawn of the same disease, as between a thunder storm as ordinarily depicted, and one which roars and flashes from the canvass of Turner or Vernet.

The *causes* of stricture are stated to be either traumatic or inflammatory, most frequently the latter; and among these, gonorrhœa is alluded to. The author does not believe that the *injections* which are made use of in the treatment of this variety of inflammation should be held answerable, as a general rule, for the production of the coarctation; he very properly, we think, ascribes this condition to *the disease*, and not to the means used for its cure.

In his account of the *treatment* of this affection, Professor Gross describes, as the most important methods, those by dilatation, compression, cauterization, incision, and external division; and exhibits what he considers are the conditions of the stricture to which each plan is most applicable. He lays down certain preparatory measures as necessary to be enforced prior to the commencement of any direct mechanical interference. He says, very justly,

"Too much stress cannot be placed upon this preliminary treatment; indeed, I should consider it highly culpable to reject it under any circumstances. When the way has been thus paved, the particular kind of treatment is to be determined by careful consideration of the nature of the obstruction. There are few points in surgery which require more judgment and experience than this"—p. 633.

After alluding to, and rejecting as improper and insufficient, that plan which proposes to cure stricture by "constitutional means, especially rigid abstinence carried almost to starvation, and the daily use of nauseating doses of tartarized antimony, or the frequent exhibition of emetics, conjoined with rest in the recumbent posture, and the avoidance of all sources of bodily excitement," he discusses the method of *dilatation*. This plan, he admits, "is more frequently applicable than any other that has yet been devised." He describes the instruments various in material, dimensions, and shape, which are, or have been, employed, and expresses his own preference as follows:—

"My conviction, founded upon ample experience, is that the very best instrument for dilating a stricture is the common silver catheter, with a slightly conical point. I have employed this instrument in the treatment of this affection for upwards of twenty years, and nothing could induce me to abandon it."

Its recommendations are stated to be its lightness, firmness, durability, and the fact that it is often requisite not only to pass through the stricture, but also to leave a hollow instrument in the bladder. Whether or not *all* these arguments are really valid can only be ascertained satisfactorily by personal trial. We have been inclined to think, in the few instances in which we have tried the silver catheter, that it is too light, and not sufficiently firm for the purpose; but far superior, in most cases, to the gum, linen, ivory, or whalebone bougies; the first two are too yielding, and the last too brittle to be

relied upon. We would not, however, advance our own opinion on this point as in opposition to the author's, whose experience with the catheter has been infinitely greater than our own. Our preference is for the solid steel or silver instrument, and we think that the point should be rounded rather than conical. There are two methods, Professor Gross mentions, by which the process of dilatation may be accomplished: one by a rapid procedure, "a small or middle-sized" instrument being made to traverse the stricture, as gently and tenderly as may be, and allowed to remain in the bladder for twenty-four or forty-eight hours, or withdrawn through the stricture and immediately followed by one or more of gradually increasing size; the other by a more slow and patient process, in which an instrument is first introduced which will readily pass the obstruction, and after two or three days another of larger diameter, and so on at intervals, until a large instrument can be easily passed, when it may be used every day, at first, and gradually less and less often. By this proceeding also the catheter may occasionally be left in the bladder. The first plan is more rapid in its effects, and is the one which the author adopts; it is liable, however, to be followed by inflammation of the urethra, prostate gland, and neck of the bladder, although he has never known it to assume a serious character. The second method is more slow, but generally succeeds in the cases to which it is applicable, is less painful, and not liable to produce any injury. Dr. Gross says, p. 639—

"The process of dilatation, or, as it might with great propriety be termed, the treatment by compression, is mainly applicable to soft and recent stricture. To those of an opposite character it is utterly unsuited, and should always give place to incision, either from within or without. I have no patience with dilatation for the removal of a hard, tough, narrow, and almost impermeable obstruction; such a case cannot be managed successfully by such a procedure; the most prolonged use of the instrument can do no good, and is only calculated to deceive the patient and bring surgery into discredit."

And in speaking of *compression* as applied to the anterior face of the stricture, he expresses strongly his want of confidence in it, entertaining, indeed, "a feeling against it almost amounting to aversion." Now we think that, in view of the success which Brodie and other distinguished surgeons have met with in the treatment of this affection by dilatation, and in view also of the acknowledged dangers and unfortunate results which have attended the employment of the other chief curative means, cauterization and incision, this decided declaration of our author is rather hasty and exclusive; and it is calculated to do harm by inducing those who have not his own skill in the use of instruments more dangerous than the dilator, to give up a safe, and, if patiently pursued, successful practice, for one which in their hands will probably do much more harm than good. It is, perhaps, the author's disinclination to, and comparative want of trust in, this plan of treatment, which has made him somewhat less careful and minute in his directions for conducting it. He lays small stress upon the dangers attending the employment of dilating instruments, such as the formation of false passages, injuries to the urethra or the prostate gland, and on the way of avoiding these accidents; nor does he allude to the importance and decided advantages of administering opium or chloroform, particularly the former, just before, or immediately subsequent to, the use of the dilator. And he might, we think, with perfect propriety have included in his enumeration of the cases to which this plan of treatment is appropriate, others besides such as are "soft and recent."

The following observations on the treatment by *cauterization* are extremely judicious:—

"Cauterization, properly used, is a valuable curative agent; but if indiscriminately employed it is capable of doing serious, if not irreparable, mischief. The circumstances to which it seems to be more particularly adapted and to which, in my judgment, it ought to be restricted, are those in which the stricture, without being very tight or extensive, is of a firm, gristly, and resilient character, and in which there is an undue amount of morbid sensibility of the mucous membrane of the urethra. I never resort to it where the obstruction is either very slight or very great; for in the former case I have rarely failed to effect a cure by dilatation, and in the latter I have almost always been obliged to have recourse to division. It may be further observed that cauterization should seldom be relied upon alone, but that its action should always be aided by the bougie or catheter, a mode of proceeding which greatly expedites the cure, and affords an additional guarantee against relapse, which is so apt to occur when this precaution is omitted"—p. 641.

His directions with regard to the use of caustics, both the nitrate of silver and the potassa, the latter of which he has often employed with the most happy effects when the lunar caustic had failed, are worthy of all reliance. But, we would ask, would it not have been well, while setting forth the applicability and the merits of the caustic, to likewise point out its dangers and the objections to its employment? for that there are strong contra-indications to its use cannot be denied.

"When a stricture is very old, firm, and unyielding, or almost cartilaginous in its consistence, no mode of dilatation, however judiciously and perseveringly employed, can succeed, either alone or in combination with cauterization, and in such a case I never hesitate to resort at once to *incision*, satisfied that nothing else will answer. I have repeatedly had under my charge patients who had been subjected to the treatment by dilatation for months and months, without the slightest benefit, and who were almost instantly relieved by the operation under consideration. This fact has been witnessed again and again by my private pupils, and by the public classes of the University of Louisville. And why should there be any hesitation or doubt concerning this operation? Where are its dangers, or the difficulties of its execution? I confess I cannot see any," &c.—p. 646.

We need not, surely, say that the last three sentences of this quotation prove that the author is so wedded to this method that he has become blinded to its dangers, or that he has closed his eyes to the facts which have been repeatedly cited to caution the profession against its employment. The instruments which he advises for the performance of this operation are substantially like those of Stafford. But, although we cannot speak so approvingly of the treatment by incision, if such a proceeding should become necessary, we should not hesitate to follow the author's directions.

A modification of this operation is that by *scarification*.

"The process is best adapted to the milder varieties of firm, gristly contractions, seated in the spongy portion of the canal"—p. 649.

The last mode of treatment which Professor Gross expounds is that by *external division*. The operation which he describes is spoken of as being

"By no means free from danger, and requires the most consummate skill for its successful execution. None but a madman or a fool would attempt it, unless he had a profound knowledge of the anatomy of the parts, and a thorough acquaintance with the use of instruments. Of all the operations of surgery, this is the least to be coveted"—p. 650. "The method described is mentioned in such a way as to induce us to infer that it is the same as that which 'has recently met with a strenuous advocate in Mr. Syme, Professor of Clinical Surgery in the University of Edinburgh.'"

But there is an important difference between the two operations. In that

described in the text, p. 651, the position of the patient is the same as in lithotomy.

"A staff or grooved director, either straight or slightly curved, is *conveyed to the seat* of the obstruction, and confided to an assistant, who also holds up the scrotum. The surgeon, sitting on a low chair, or resting upon one knee, takes a narrow-bladed scalpel, and makes an incision into the raphé of the perineum, about an inch and a quarter in length, taking care, on the one hand, not to interfere with the rectum, and, on the other, not to extend it too high up towards the bulb of the urethra. The knife is plunged in, at the first stroke, to a considerable depth, and is then used to divide, by successive touches, the parts overlying the stricture. Feeling now for the end of the staff, the point of the instrument is inserted into the contracted part, which is next freely divided from before backwards. A catheter is now introduced into the bladder, and the case is treated, to all intents and purposes, as one of lithotomy."

The italics in the above are of our own making. In Mr. Syme's operation,

"A grooved director, slightly curved, and small enough *to pass readily through the stricture*, is introduced, and confided to one of the assistants. The surgeon, sitting or kneeling on one knee, now makes an incision in the middle of the perineum, or penis, wherever the stricture is situated. It should be about an inch or an inch and a half in length, and extend through the integuments and subjacent textures exterior to the urethra. The operator, then taking the handle of the director in his left, and the knife, which should be a small straight bistoury, in his right hand, feels, with his forefinger guarding the blade, for the director, and pushes the point into the groove behind, or on the bladder-side of the stricture—runs the knife forwards, so as to divide the whole of the thickened texture at the contracted part of the canal—and withdraws the director. Finally, a No. 7 or 8 silver catheter is introduced into the bladder and retained by a suitable arrangement of tapes, with a plug to prevent trouble from the discharge of urine." (*On Stricture of the Urethra and Fistula in Perineo*, by James Syme, 1849.)

The peculiarity of this procedure consists in cutting down upon a grooved director previously introduced *through the stricture*, whereas in Dr. Gross's account "the director or staff" is merely inserted along the urethra *as far as the commencement of the obstruction*. But this element in the operation is of great importance in giving more certainty to the course of the incision, and we think that it renders Mr. Syme's proceeding much the more worthy of imitation.

Professor Gross next directs his attention to polypoid and vascular tumours of the urethra, neuralgia, hemorrhage of, and foreign bodies in, this passage. We have already occupied so much space in our notice of this work that we shall not comment upon these chapters.

Chapters 9 and 10 present respectively a very good exposition of the pathology and treatment of urinary abscess, or, as Professor Gross prefers, and for very sufficient reasons, to term it, "*urethral*," or "*sub-urethral*" *abscess*, and *fistula of the urethra*. The author differs from Sir Benjamin Brodie in not limiting the starting-point of these affections to the lining membrane of the canal, but admits that they may also originate in causes acting from without and involving the lining membrane of the urethra subsequently.

The only remaining topics treated of by Professor Gross are *false passages* from the urethra, *lesions of the gallinaginous crest*, and *inflammation* and *abscess of Cowper's glands*.

We have long trespassed upon the patience of our readers, but the character and bulk of the volume must be our apology. It has afforded us much pleasure and instruction, and we shall always refer to it for advice in cases of difficulty and doubt. We sincerely congratulate its author upon his happy

execution of so laborious and responsible an undertaking; and we hope, for our own benefit, for the advancement of professional knowledge in our country, as well as for his peculiar fame, that he will devote his time and talents to other subjects of equal importance to those which he has elucidated.

We shall be expected to speak of the literary and mechanical execution of the book. The style is plain, rather severe; it is not free from inelegancies and inaccuracies, but we attribute them to the author's not having had the opportunity of revising the publication. The plates are admirably done, and the whole appearance of the volume is very commendable.

F. W. S.

ART. XI.—*Letters to a Candid Inquirer on Animal Magnetism.* By WILLIAM GREGORY, M.D., F.R.S.E., Professor of Chemistry in the University of Edinburgh. Philadelphia: Blanchard and Lea, 1851.

DR. GREGORY is a most thorough believer in Animal Magnetism. He believes everything that ever was asserted of it, and is evidently prepared to believe everything that ever will be asserted of it. His is no partial possession. Animal magnetism has as complete control over him as he would ever wish to have over one of his subjects through the "odylic influence" that streams from his fingers, or his eyes, or from his intense will. His belief is not only a monstrosity, but an enormous one. Its big open mouth swallows everything. It would be a small thing to say of it that it "swallows a camel."

We have no idea of writing a formal staid criticism upon his book. Such a mass of folly, though it wear a scientific guise, and come from a professor in the ancient and renowned city of Edinburgh, and is lauded in certain literary and scientific quarters, deserves no such notice. We will glance, however, at some of the notions, or rather dreams, of the professor, as illustrative of the *immense capabilities of human belief.*

Dr. Gregory not only believes in all the different ways in which the magnetic influence is exerted—by passes with the hand, by breathings, by the fixed look, and by the silent but fixed will; but he also believes that the subject needs not to be near the operator. They may be separated by miles upon miles of distance, and by walls of brick and mortar; and yet the effects come. Why should he refuse to believe this? He has seen it exemplified in his own family. Mr. Lewis, "the distinguished negro magnetizer" (negroes being discovered to be highly susceptible subjects, this field promises to be highly cultivated by amateurs), was present at the professor's house one evening, and operated upon the company, about fifty, *en masse.* A member of the family, a lady, who was one of those that chanced to be affected, had a headache in consequence. The professor spoke to Mr. Lewis about it in the morning. He said, "Oh! never mind her headache. I shall think of her some time to-day, and dismiss her headache." At half-past three she was quite sure that the absent Mr. Lewis was magnetizing her, and soon went to sleep and woke up free from the headache. It was of course found that Mr. Lewis did magnetize her at that time, although he was in another street at some distance. How very ungallant, not to say cruel, Mr. Lewis was to wait from morning till precisely half-past three in the afternoon before he relieved the

lady! Why he did not do it at once when the professor spoke to him we are not informed.

The magnetic influence, Dr. Gregory asserts, can be sent to any distance attached to some substance, as water, paper, gloves, &c. A Mr. Atkinson, who, though not a physician, employs mesmerism, as Dr. Gregory says, to a great extent as a medicinal agent from pure motives of benevolence, sent a pair of mesmerized gloves to a patient in Paris "suffering from tic"—they "relieved her intense suffering, which all other means had failed to do." He sent "newly-mesmerized gloves" every week, as the old ones not only lost their power, but came back charged with an influence which caused disagreeable sensations, and even gave him a little shock from the lady's tic. A mesmeric cleansing was therefore needed before they could be used again. Mr. Atkinson says, "I have experienced the same sympathetic influence as in the case of gloves from letters, especially if the paper were glazed, and I could thus tell the state of the patient before reading the letter. Sometimes the heat and pricking have been so strong, that I have laid the letter on the table to read without touching it. The influence from a feverish state would cause my hand to feel hot and feverish, even to others, the whole day. On one occasion, on reading a letter from a distance, I had the sensation of tears. It was so strong that I felt sure the writer had been in tears while writing it, although nothing in the case or in the letter led to the conclusion. It proved, however, on inquiry, that the writer had been in tears, and that the tears had fallen on the paper." This same Mr. Atkinson also says, "On one occasion I *breathed* a dream into a glove, which I sent to a lady; the dream occurred"—that is, we suppose, she had the dream the next time that she slept. As he is so benevolent, we presume that the dream he sent was a pleasant one. The learned comment of Professor Gregory upon these statements is that they "tend to throw light upon the propagation of disease by contagion."

The professor is a full believer in clairvoyance in all its modes and forms. Clairvoyants do not see with their eyes at all. Such vulgar means of vision are discarded altogether. They see from the side or back of the head, from the pit of the stomach, &c., and sometimes from no particular part. They see at all sorts of distances, and through all sorts of things. It is generally quite immaterial to a practiced clairvoyant whether she (I say *she*, for clairvoyants are commonly women) is to see and describe things in the room, or in another house, town, or country, or world. "Yet it often happens," says Professor G., "that a clairvoyant, who can see and describe very well all that is in the same room, or the next room, or even in the same house, cannot thus travel to a distance, without passing into a new stage." When once in this "new or travelling stage," the operator can send the subject anywhere, into any house far or near, and she will describe what is passing there. So says our erudite professor, and so say magnetizers generally. If this be so, it appears strange to us that clairvoyance has not played a very considerable figure in revealing family secrets, and making mischief in neighbourhoods. But we presume that the reason is that magnetizers are a peculiarly pure and benevolent class of men, and are uncommonly free from the instigations of the devil.

Sir John Franklin has received a very large share of attention from clairvoyants. They have seen his vessels encased in ice, and described minutely the situation of things—as minutely as some of them described the destruction of the Atlantic just before the news of her safety reached New York. Some clairvoyants predicted the return of Sir John a long time ago. Dr. Gregory finds a ready excuse for this blunder in their benevolence—he thinks it is because they "are strongly affected by sympathy with the feelings and wishes of those who consult them, which feelings and wishes they, as it were, reflect."

Professor Gregory agrees with his brother magnetizers in thinking that clairvoyants have the power of detecting thieves, and cites some cases in proof of it. He mentions a clairvoyant who traced fifteen bales of cotton, which had been stolen from a vessel in New Orleans, to another vessel in Havre. The cotton was found where the clairvoyant said it would be.

If what magnetizers assert be true, it is a little strange that animal magnetism has not been put to more practical use in recovering lost and stolen property, and in detecting thieves, and, indeed, all sorts of criminals. The subject has long been before the community, and there has been ample time to demonstrate most fully the capabilities of animal magnetism in this respect. The public seem to be singularly obstinate in rejecting the precious boon which is offered them by the magnetizers. Although most new things meet with a very ready reception with the multitude, whether scientific men believe them or not, the new discoveries of animal magnetism, though they answer very well for an evening's entertainment, do not seem to be practically believed to any great extent. At least this is the case with the most valuable of them. Though clairvoyants are proved, as is asserted by such wise men as Dr. Gregory, to have such powers, their services have as yet been seldom called for in detecting thieves and other criminals, and never, we believe, by those who are particularly skilled in such matters. The old-fashioned modes of detection are still in vogue with the police. Either the community must be singularly blind to their interests, or Professor Gregory and his compeers are blind to the truth —we will not say which.

We once witnessed an examination of a clairvoyant in regard to some stolen money. All the questions were prompted by a suspicion of a particular individual, and were, therefore, leading questions, and were answered accordingly. Though to us it was a very bungling performance, not having the magnetic capacity of belief, the many mistakes made by the clairvoyant did not prevent the rest of the company from believing it all to be correct. And the thief was followed upon the track marked out, but no such man had been seen by any one on that track, although one of the places where the clairvoyant saw him stop was a public bar-room.

If clairvoyants can see things through walls, through anything, and at great distances, it is not strange that they can see what is within themselves. Upon this power of *introvision*, as it is called, Dr. Gregory thus remarks:—

"The most eloquent descriptions ever given of the wonders of the human body, never produced half the effect upon the mind which is caused by the simple but graphic words of the clairvoyant, who is perhaps altogether ignorant of anatomy, and yet sees, in all their beauty and marvellous perfection, the muscles, bones, vessels, nerves, glands, brain, lungs, and other viscera, and describes the minutest ramifications of nerves and vessels, with an accuracy surpassing that of the most skillful anatomist. He will trace any vessel or nerve in its most complex distribution; the whole to him is transparent, bathed in delicate light, and full of life and motion. Some at first are terrified at seeing these wonders, but soon learn to admire and delight in them. But it is only a certain proportion of clairvoyants who pass into that particular stage, and as experiments are most frequently made on the uneducated, or half educated, they are often at a loss for words to describe what they see. I cannot doubt that when intelligent medical men shall be themselves rendered clairvoyant, some useful information will be derived from the exercise of this power.

"It is easy to understand, that when the sleeper sees his frame in this perfect way, he can detect disorder and disorganization in it. This, indeed, he very readily does, and his diagnosis is often confirmed by that of the physician who attends him when he is suffering from illness.

"The clairvoyant, in some cases, possesses the same power in reference to the bodies of those *en rapport* with him. He describes their structure, and its

derangements; and I have good reason to believe that in some instances, when the disease is of an obscure nature, his diagnosis has proved, and has been acknowledged to be, correct.

"The clairvoyant who possesses this power can often exercise it at a distance, with the help of the hair or of the hand-writing. I have seen it done both ways, and repeatedly with very great minuteness and accuracy. The observations of the clairvoyant have always corresponded to the opinion of the physician who knew and treated the case, but have often gone further, and in the subsequent opinion of the physician, correctly in the cases I have studied."

Now all this is asserted, not by some impudent and ignorant travelling lecturer, but by *Doctor* Gregory, Professor of Chemistry, in the city of Edinburgh. If it be true, what a change it will effect in medical science! Clairvoyance is to be the great means of exploration both in health and disease. Every physician must have his clairvoyant. And he need not leave his study to diagnose disease—a little of the patient's hair, or even some of his writing, will be all-sufficient to reveal his condition. From what toils, what exposures, will this save the physician!

Wonderful as all this is, there are greater wonders still. The clairvoyant, says Professor Gregory, "will often predict the course of disease and its termination, in those persons with whom he is in *rapport* or sympathy." And he mentions a case in which the time of death was accurately predicted six years before it occurred. And this power of *prevision*, as it is termed, has relation not merely to sickness, but exists in regard to all kinds of events. Animal magnetism has restored to the world the gifts of prophecy in the persons chiefly of women and negroes, the latter having been found of late to be peculiarly susceptible as clairvoyants.

But the clairvoyant has not only the power of prevision, but of *retro*-vision also. And Dr. Gregory suggests that "by the means of some very lucid clairvoyants, many obscure points in history might be cleared up, and that by the discovery of documentary evidence." We fear that the public will be as obstinate about this as they have been about employing clairvoyants in the detection of thieves.

The past, the present, and the future, are then, according to Professor Gregory, all open to the eye of the clairvoyant! When all the scientific and learned men in the world shall come to agree with him, and each shall be busy with his clairvoyant, how vast and varied and rapid will be the accumulation of knowledge! A new era will open upon us! All the old lights will become dim, extinguished in the meridian blaze of clairvoyance!

Professor Gregory is a full believer in what is called phreno-magnetism. And from his own account of himself, he is a very skillful player upon the bumps—they always answering to his touch as readily and correctly as the keys of a piano would do. We have heard, in our day, some wrong notes responded to travelling magnetizers as they have played upon the bumps, but we presume Dr. Gregory never makes any mistakes, nor his subjects; he knows just where the organs are, and his subjects undoubtedly know quite as well as he does.

Dr. Gregory informs us that only a few of the clairvoyants can thus have their heads played upon, and, as he is never at a loss for a reason for anything, he thinks that "the sensitiveness to touch over the cerebral organs belongs to a particular stage of the sleep." He gives quite a full account of two cases in which the cerebral music was exactly to his mind. Of one of them, he says, "If, while benevolence was in action, I touched acquisitiveness, he instantly collared me to recover what he had given me; if combativeness was touched, before I could remove the finger, he had struck out with his fist, and

assumed a very pugnacious attitude. When I combined benevolence and acquisitiveness, he pulled out money and offered it; but, on my attempting to take it, always withdrew it, his eyes being closed, and told me he required it more himself. When in the act of falling on his knees, veneration being touched, the slightest touch on self-esteem sent him up like a shot, or combativeness made him attack, in the fraction of a second, who ever happened to be before him. In short, I could *play* on him exactly *as on an organ*, producing any expression, gesture, or action I pleased, simple or combined." This, with the addition of the baby scene, produced by touching philoprogenitiveness, is a very good representation of the exhibitions of phreno-magnetism made night after night, with all the marks of a thoroughly learned lesson, by travelling lecturers.

Dr. Gregory speaks of some peculiarities in this case. "I could excite," he says, "laughter by touching the organ of gaiety or mirthfulness. But I could also cause laughter by touching the angles of the mouth, when it often became very violent. In either case, I had only to touch the middle of the chin, in order instantly to change the laugh into the profoundest gravity. This fact was pointed out to me by Mr. Bruce, who had studied the case four years before. He also told me that touching a certain part of the leg caused the young man to dance. I tried this, but probably did not touch the right spot, or touched it too strongly, for the result was a sudden and most violent kick, fortunately received by a table, and accompanied by a very angry pantomime. This I saw several times." As this clairvoyant had been practicing at least four years, it is no wonder that, like a true amateur, he added some "peculiarities" to the otherwise monotonous exhibitions of phreno-magnetism. But these peculiarities are very peculiar. Professor Gregory accounts for them by saying that "the effect of touching certain parts of the body no doubt depends on their nervous connection with the brain." That is, the corners of the mouth in this clairvoyant had a "nervous connection" with the organ in the brain that makes us laugh, the middle of the chin with that organ that makes us grave, a particular spot on the leg with the organ that makes us dance, and another spot, so close to the last that even so acute an observer as Dr. Gregory mistook between the two, with the organ that makes us kick with violence and anger—some department, we suppose, of the organ of combativeness. Dr. Gregory hints that perhaps he touched the dancing spot, but "too strongly," and therefore kicking resulted in place of dancing; but we think that on further reflection he will conclude, that it is more probable that the kicking and dancing spots are distinct, but lie very near together. Indeed, some further experiments with this clairvoyant, under the observant eye of Dr. Gregory, might settle the matter. He has settled quite as nice points before. For example, he says, "In the region of the supposed organ of alimentiveness, I found within a small space three different points, the touching of one of which produced excessive desire to eat, of another the desire to drink, of the third, sensations of smell. To obtain these results, it was necessary only to move the point of the finger one-fourth or one-eighth of an inch, the three points lying in less than the surface of a shilling." Now the nice fingers that made this discovery are certainly competent to decide beyond a doubt whether the "nervous connections" with the dancing and kicking organs are in one spot, or in two different spots.

Professor Gregory thinks that Baron Von Reichenbach has discovered the existence of a power, or force, or influence, or fluid (for all these terms are used in relation to it), which he calls odyle. It is analogous, it is said, in many respects, to the imponderables, light, heat, &c. It is the agent which,

in his view, produces all the various phenomena of Mesmerism, Animal Magnetism, Electro-Biology, Hypnotism, Psychology, &c., with which believers in such things have been dazzled for the last half century. Dr. Gregory speaks of the "odylic atmosphere of the operator," which it seems is distinctly "luminous" to many "lucid persons," and the phenomena are to be attributed to "emanations" of this odyle, which "traverses space as light does; only, as appears from the observations of Reichenbach, not quite so rapidly."

In explanation of clairvoyants seeing things at a distance, Professor Gregory says, "It is obvious that to an influence like odyle, as to light, distance may be a matter of no importance." But this does not exactly explain why they see through walls of stone, or brick and mortar. If the odyle goes through them, light, which he compares to it, does not—in this respect, these two imponderables differ, which Dr. Gregory, with all his acuteness, has failed to notice. Perhaps odyle is more penetrating than light, or is more diffusible, and so gets round obstacles more readily than light does. It seems to move in very straight lines, in some cases at least, for, when Dr. Gregory plays on the keys of the cerebral organ in phreno-magnetism, the odyle goes straight to the organ pointed at, and there is no escape of it to the neighbours, even though it may be small, and may stand amid a cluster of small organs. There is no getting away from facts, however; and what if odyle does sometimes go very straight, and at other times take a crooked and winding course! So subtle a thing may, of course, be very accommodating—it must be, in order to produce such a variety of results as Professor Gregory attributes to it.

We have no idea of treating extensively of this new imponderable, but will merely notice some of its modes of operation.

Dr. Gregory tells a story about "an old house near Edinburgh, long since fallen down," of the truth of which he has no doubt (doubting being a thing to which he is little accustomed), and he endeavours to account for the facts by animal magnetism. A box of bones was found, he says, upon the premises; and he accounts for the ghosts by supposing that the odyle from those bones entered the brains of those who saw them, and there produced the visions.

Where past events are seen by the clairvoyant, Dr. Gregory supposes that he "follows their odylic traces upward." That is, every event sends down the stream of time an "odylic trace," and the clairvoyant (*how*, he does not inform us) follows it up till he comes to the event itself. He does this very much as "a dog, liberated from confinement, traces his master." This theory, he says, "agrees with that old one, which maintains that every event leaves an indelible trace, which continues to exist as long as the world to which the event belongs." But how the clairvoyant sees *future* events it seems to puzzle even Professor Gregory to tell. The "odylic traces" fail him here—no odyle can come from things which do not as yet exist. Though he hints that some explanation may be found in the old saying that "coming events cast their shadows before," and that the present contains the germs of all that is future, he says, with an air of doubt and carefulness we have not seen in him before, "We come here on ground which quakes and gives way beneath our feet." But he says also, "I hold fast to the facts;" and he is very sure that "patient and persevering research, carried on in the sincere love of truth, will, in the end, enable us better to understand even these obscure phenomena." And we have no manner of doubt that his expectation will be realized. For minds, like those of Reichenbach and Professor Gregory, that are satisfied with the very "luminous odylic" explanation of *retro*-vision, cannot exist long without having quite as satisfactory an explanation of the

mode of seeing coming events. For our part, we are puzzled to know why Dr. Gregory, who has explained to his own satisfaction so many mysteries quite as great, all at once balks at this.

Professor Gregory very strongly commends the study of animal magnetism to those who have the care of the insane. He says that, "in many cases the essence of insanity is some disturbance of the natural distribution of odyle in the system." He believes in the old idea of the agency of the moon in causing insanity, and says, "the effect of the moon on the insane" is to be referred to the fact that its rays are "strongly charged with positive odyle."

Odyle, he thinks, is the agent in all sorcery, witchcraft, magic, divination, demoniacal possession, &c.

Even love comes of odyle. The arrows of Cupid, according to Dr. Gregory, are nothing but "emanations of odyle." On this subject, he thus discourseth: "Sympathy often produces a strong attraction between two persons who see each other for the first time. Neither of them can explain it, but both feel it, and their love at first sight is no fancy, but a reality. It arises, in part, from a pleasing correspondence between the magnetic influences of the parties, and when this is the case, it is as durable as strong. Nay, it is well known that there are many persons who frequently quarrel after being long together (disturbances of the odyle, we suppose), yet are quite wretched if separated, and infallibly come together (by the force of odylic attraction of course), till a new quarrel again forces them asunder; again to feel miserable apart." What scientific sentimentality! Dr. Gregory will, ere long, be the poet-priest of animal magnetism!

Antipathies, too, come of this busy odyle. Dr. Gregory does not tell us *how*—he only gives us the fact, which we suppose he, or Reichenbach, has demonstrated to his satisfaction, and *therefore* it is a fact. Whether the antipathy be to a person, an animal, or a substance, the odyle somehow causes it.

Professor Gregory thinks that odyle, or magnetic influence, is the cause of numberless wonderful phenomena in animals. He almost resolves all instinct into odyle. After speaking of bird-charming and horse-taming, he says, that "Miss Martineau has also recently published a case, in which she not only magnetized a cow suffering from acute disease, but cured the animal by magnetic treatment." An interesting episode this would make in a Bucolic, illustrative of odylic love; perhaps Professor Gregory will try his hand at this.

The "snail telegraph" is adduced by Professor Gregory as a striking example of the agency of animal magnetism, as the source of sympathy in animals. The account which he gives of it is this: "Every letter has a snail belonging to it in Paris; while in America, each letter has also a snail sympathetic with that of the same letter in Paris; the two snails of each letter having been at some period, and by some process, brought into full sympathy, and then separated and marked. There is, of course, a stock of spare snails for each letter in case of accident; but it is found that these animals will live for a year without food, should that be necessary. When a word is to be spelled in Paris, the snail belonging to the first letter is brought by some galvanic apparatus, not yet fully described, into a state of disturbance, with which his fellow in America sympathizes. But this requires to be ascertained; which is done by approaching in America to all the snails successively a testing apparatus, not described, which, however, contains a snail. On the approach of this, the snail whose fellow in Paris has been acted upon, exhibits some symptom which is not exhibited by any other, and the corresponding letter is noted down. This is done with each letter, and thus the word is finally spelled.

"Now all this may appear at first sight," continues Professor Gregory, "very absurd and ridiculous. I confess (indeed!) it appeared so to me when I first heard of it. But, when I recollected all I had seen of sympathy in man, and all that was known about sympathy in the lower animals; and when I read the account given by M. Allix, a gentleman well versed in science, of the successful experiments at which he had assisted, I perceived that the only difficulty lay in admitting the fact of the extraordinary sympathy of snails, and that this being granted, all the rest was not only possible, but easy." The details of this new "discovery" have not yet been published, although the discoverers, two Frenchmen, "have been for ten years engaged in bringing their discovery into a practical form." But Dr. Gregory seems to think that the facts are well attested, and says, "It will certainly be very remarkable if a snail telegraph should come into action; which, in spite of the proverbial slowness of the animal concerned, should rival in rapidity the electric telegraph, and perhaps it in security; inasmuch as there are no wires to be cut by an enemy, besides being infinitely less costly; since no solid tangible means of communication are required, and all that is needed is the apparatus at either end of the line, and the properly prepared snails."

But there are other wonders to come besides the snail telegraph. The anticipations of Professor Gregory are brilliant, and fill him with enthusiasm. As we have a galvanometer and a photometer, he expects that we shall soon have an odylometer to measure all quantities of odylic force. But this is not all. He expects that we shall, ere long, have "an odylic battery, just as we have a galvanic battery," and says that, "when we shall have thus obtained the power of odylically affecting every man, a vast step will be gained." We agree with him that such discoveries as these "would at once do the work of a century in promoting the progress of odylic science." If the laboratory of the professor could be graced with the odylometer, the odylic battery, and the snail telegraph, what a blaze of odylic light would be concentrated there from the past, the present, and the future! And who could endure it but those whose bodies had been long "bathed in odylic light," and whose minds had been long saturated with odylic belief?

Such are some few of the notions and statements which we find in Professor Gregory's book. As we have read them, we have paused, we know not how often, and asked, Can it be that Dr. Gregory, the Professor of Chemistry in Edinburgh, really believes as he writes? May it not, after all, be a burlesque?

It was no part of our intention to examine critically, and to any extent, the subject of animal magnetism. The folly and falsehood which have been put forth under this name are mixed with so little that is true and valuable that we do not wonder at all that reasonable and scientific men are so little disposed to look into these subjects. There is so little wheat amid the abundance of chaff, that it is not worth the sifting. The time which would be consumed in doing it may be much more advantageously employed in fields of knowledge which yield a much larger and surer return for our labour.

We have seen enough in the exhibitions which have been made, and in the books which have been published, to convince us that the little that is true of all which is included under the name of animal magnetism, is to be attributed solely to certain *nervous conditions induced through mental influence.* The mixture of imposture with these conditions is a very strange mixture, it is true; but it is not an incompatible one. What physician of any experience has not seen occasionally in hysteric patients just this mixture? The prospect of notoriety, and that too among the titled, the rich, and the scientific, to say nothing of pecuniary compensation, suffices to convert many such patients into very skillful clairvoyants.

Sometimes there is no such mixture, but the exhibition is sheer unmixed imposture. And the operator, though he may not be an amateur, but an out and out impostor, is not always able to discern pure imposture from that which is not. We have seen a very celebrated magnetizer thoroughly in doubt whether a roguish boy was really in the so called magnetic state, or was playing a trick upon him. And we have known persons, as a matter of sport, to mingle among the subjects of the psychologist (so called) who, in obedience to his directions, were playing all sorts of antics, because they thought that they could not help doing so, and while they duped the operator, they acted their parts quite as much to the satisfaction of the audience as the dupes themselves.

While the amateur and scientific votaries of this science are for the most part duped by their subjects, we have no doubt that the lecturing exhibitors of animal magnetism, in its various forms, are as arrant a set of impostors as ever duped any community. And yet, whenever one comes along, a large audience is gathered, and among them are many of the intelligent and the influential, and some clergymen, of course, and generally some physicians. The exhibition is at least amusing; and the imposture is so well managed that but few have acuteness enough to detect it, if they wished to do so. The farce of having a committee of wise men to watch the operator is always gone through with as a matter of course, as giving an air of honesty and respectability to the exhibition. But any fair and thorough testing is most scrupulously avoided. We once made a proposition for such a testing to one of the most skillful and respectable of these travelling magnetizers, but though the fairness of the proposition was admitted, he continued with various excuses to delay the examination, till he had gone through with all his public exhibitions; and then he had no time to spare, even at a high compensation which was offered him, because he was in haste to go on, and dupe other communities.

It is worthy of remark that these lecturers seldom, if ever, appear a second time in the same place, however great their success has been. In large cities, it is true, it may be otherwise, because there the material for fresh audiences is abundant. So, too, the career of each lecturer is apt to be a short one—there is a constant succession of them. For the same reason the "science" continually changes its name, and appears with a new phase; and so we have Mesmerism, Animal Magnetism, Pathetism, Electro-Biology, Hypnotism, Psychology, &c. The subjects, too, however famous they become, do not last long, and new ones rise to take their places. And those localities where animal magnetism has made its most signal displays, and astonished and led captive almost the whole community, have in a little time lost all knowledge, all "trace," of the odyle that was there, so that one would suppose that some strange power had utterly banished this agent, though for a time the place was "luminous" from its presence. Perhaps no place in this country has been more famous for the doings of animal magnetism than Providence was some dozen years ago. The odyle was then so abundant there that its "emanations" drew (we suppose by their peculiar attractive power) many pilgrims to the favoured spot from distant places. Among them was Colonel Stone, who published his experience in a pamphlet, which was for a time very famous. But short was this brilliant display of odyle there. The reason is probably to be found in the fact, which Professor Gregory comments upon in his work, that odyle has, like electricity, a strong tendency to an equilibrium, of course preventing any excessive accumulation of it from continuing any length of time. Colonel Stone's pamphlet, M. Poyen the operator, and Miss Bracket

the subject, soon ceased to be "luminous," and went into the shades of forgetfulness; and the people of Providence are to this day in entire darkness on the subject of animal magnetism. Their "odylic light" is not only in total, but as it seems in final eclipse.

Professor Gregory makes great complaint, again and again, that scientific men, and especially physicians, have neglected animal magnetism, and throws out the usual threadbare allusions to Galileo, Copernicus, Harvey, Jenner, &c. This might be expected of quacks and travelling exhibitors—they have the excuse of ignorance. But a professor in Edinburgh must know better—he must know that new things are not treated now as they were in the dark times of Galileo and Copernicus, when antiquity bore such sway; and that the discoveries of Harvey and Jenner, though they met with opposition, were in the course of a few years welcomed by almost the whole body of the medical profession, and, therefore, furnish no parallel to the steady rejection with which animal magnetism, and its associate phantasm homœopathy, have met from them for more than half a century.

Dr. Gregory begins his book with a laboured consideration of the various objections which have been brought against animal magnetism. He manages this quite dexterously, misrepresenting some objections, trumping up some that were never adduced by intelligent and scientific men, and avoiding continually the real points at issue in the case. The main, the grand objection he does not state, nor even allude to it with any distinctness—viz., *that the alleged facts are most of them not proved.* Though the believers in this "science" make great boast of their facts, they are exceedingly loose in regard to the evidence upon which their facts rest. The main points are often wholly neglected. A single example will suffice, though a multitude might be cited. It is a case of which Colonel Stone makes great parade in his pamphlet. He gave the clairvoyant a sealed packet with a very odd sentence in it, a part of which she read, as the colonel supposed, without opening it. But how did he know that she did not open it? Simply because it was a day or two after returned to him apparently in the same state as he gave it to her. This he considered to be good proof. But we do not—it is defective in its most essential point. If she could read the packet without opening it, why did she not do it in Colonel Stone's presence? There is not a particle of evidence offered to show that any one saw her do it. The true test was an easy one, but it was not applied. There is such a thing as skill in opening seals and replacing them so that it is not easy to detect it. And until we have the proof that this was not done, we are not warranted in believing that the clairvoyant read through the envelope. Another similar case is given in the colonel's pamphlet, against which the same objection lies.

Similar defects in the evidence upon which animal magnetizers ask for our belief are continually presenting themselves. And they seem utterly blind to the proofs of imposture on the part of their subjects. The occasional detection of them by others of less credulity does not seem to open their eyes in the least. The Okeys, that duped Professor Elliotson and a formidable troup of scientific and learned men in London, were at length proved beyond all doubt to be impostors—but the believers believed still. And so of other cases. Those who are once thoroughly possessed with the spirit of delusion are seldom converted from their errors.

It is curious to observe how belief in one absurdity prepares for belief in others. A propensity is created which manifests itself whenever the occasion presents. The possession is ordinarily such that the spirit of delusion may well be termed *legion.* Most various and incongruous are the beliefs which it

generates. It is eager for all novelties. For this reason we had not a doubt, after reading a little way in Dr. Gregory's book, that he was a believer in homœopathy, and we found in the latter part of it that it really was so. And we presume that Professor Henderson, the great representative of homœopathy in Edinburgh, like his master Hahnemann, is a full convert to animal magnetism—if it be otherwise, it is an unwonted phenomenon. The same transgression of the rules of evidence which is required for the belief of the one is required for the belief of the other.

We know nothing of Dr. Gregory's standing as a professor of chemistry. Chemistry is so exact a science that the rules of evidence which apply to it are very simple. And Dr. Gregory does not seem to understand that, when he passes from chemistry to the examination of the phenomena of life, and spirit, and disease, mingled and complicated as they are, vastly more caution is needed in order to ascertain the truth and avoid error. One thing is certain, that Professor Gregory's dabbling with animal magnetism will not improve him as a teacher of chemistry. The moment that anything complicated shall occur—anything in which credulity or a disposition to theorize will be apt to lead astray—Dr. Gregory will be led into error. It cannot be otherwise with one who expects ere long to see in his laboratory an odylometer, an odylic battery, and perhaps a snail telegraph.

As to the complaint made by Professor Gregory, that physicians and scientific men generally refuse to look into animal magnetism, we remark that, *in every case where they have examined it with any thoroughness, most of its pretensions have been proved to be false.* And this leads us also to remark, in conclusion, that the duty of all intelligent men clearly is, either to have nothing to do with it, or to test its merits according to the strict rules of evidence. The half-way examinations which they have bestowed upon it, as exhibited by travelling lecturers, have only given currency to this delusion, and through this to others; and thus respectability, and honesty, and even science have been made to favour tendencies, which, by encouraging loose habits of reasoning and belief, are undermining the very foundations of truth. In this way, physicians have encouraged that loose and theorizing observation which, more than any other cause, has retarded the progress of medical science; and clergymen have fostered errors which are cutting loose many minds from all reason, and of course from all rational religion. W. H.

BIBLIOGRAPHICAL NOTICES.

Art. XII.—*Surgical Anatomy.* By Joseph Maclise, Surgeon. (With coloured plates.) Part IV. Philadelphia: Blanchard and Lea, 1851.

We are very glad to see that this excellent work approaches so nearly to its conclusion. "The four parts now issued contain sixty-two plates, being the number originally promised and expected to complete the work, when the first part was published. The increased number of plates will, however, render a fifth part necessary, which will shortly be ready. Price only one dollar."

Our readers will, perhaps, recollect that the third part of this book, noticed in a former number of the Journal, was taken up with the illustration of Hernia, the particulars of which were very fully exposed. We shall, in the course of the following notice, set forth the topics which the present fasciculus is intended to exhibit.

Plate forty-seven, the first of this division, represents "the Surgical Dissection of the principal Blood-vessels and Nerves of the Iliac and Femoral regions." The author remarks, "The main artery of the lower limb is usually described as divisible into parts, according to the regions which it traverses. But, as in examining any one of these parts, irrespective of the others, many facts of chief surgical importance are thereby obscured and overlooked, I propose to consider the vessel *as a whole*, continuous from the aorta to where it enters the popliteal space"—p. 105. And this he does without neglecting the relational anatomy of each of the ordinary artificial divisions of the vessel. This we consider one of the important characteristics of Mr. Maclise's treatise; that he looks upon and demonstrates the anatomy of each region, and of each prominent element of each region, as part of the whole organism, having with it inseparable ties, but more particularly connected with some great segment of the body. In the chapter explanatory of the plate, the mode of origin of the iliac vessels is indicated, together with the point on the skeleton which may serve as a guide to the seat of the division of the aorta; then the course of the vessels is traced, and their connections with the other component parts of the iliac and femoral regions are described, until they leave this part of the lower limb. The best points for securing the artery in the different sections are also commented on.

Plates forty-eight and forty-nine illustrate "the Relational Anatomy of the Male Pelvic Organs." And in connection with them, the relation of the organs of the abdomen to those of the pelvis is referred to in the different acts to which both are subject under the influence of the thoracic and abdominal muscles. The situation, connections, form, dimensions, &c., of the *urinary bladder*, under varying circumstances; the disposition of the *peritoneum* with reference to this organ; the important parts situated about the neck of the bladder and the rectum; the vascular peculiarities of the pelvic cavity—these are the subjects of the comments attached to the plates.

"The Surgical Dissection of the Superficial Structures of the Male Perineum" is exhibited in plates fifty and fifty-one. These plates present five different views of this part. The chief topics which the author elucidates in his explanation are, the continuity of the superficial fascia of the abdomen and the perineum, and the mode in which this important tissue is distributed over the lower part of the belly, the scrotum, and the perineum, so that its great function, in a surgical point of view, is effected, viz., the limitation of urinary infiltration; and the constitution of the perineum beneath this fascia, its component structures, its boundaries, and its relations to the different organs contained in the pelvis. And to give the remarks a practical bearing, the operations implicating these parts are glanced at. This is an exceedingly interesting and valuable chapter. It forms an admirable introduction to that which

succeeds it, on the surgical dissection of the deep structures of the male perineum, and the lateral operation of lithotomy, elucidated by four drawings.

The commentary on plates fifty-four, fifty-five, and fifty-six refers to the surgical dissection of the male bladder and urethra, and comprises an account of the lateral and bilateral operations of lithotomy. To this chapter are attached eight lithographs. In this comparative view of the two operations for the removal of stone from the bladder, the author exhibits the incisions made in each, and contrasts them with reference to their respective merits, as avoiding the dangers to which each is exposed, and as offering facilities for the extraction of the calculus. In addition to this, some excellent views are given of the course of the urethra, and the obstacles to the introduction of the catheter.

Plates fifty-seven and fifty-eight and the associated remarks are explanatory of the congenital and pathological deformities of the prepuce and urethra—as well as of stricture and mechanical obstructions of this canal. For the illustration of these, twenty-six views of the parts are presented. These drawings are of value, inasmuch as they represent, as we gather from the text, *bonâ fide* cases of congenital and accidental derangement.

In plates fifty-nine and sixty, comprising twenty-five separate drawings, we have exposed the various forms and positions of strictures, and other obstructions of the urethra, false passages, and enlargements and deformities of the prostate. The subject of deformities of the prostate, and the consequent distortions and obstructions of the prostatic portion of the urethra, is contained in the concluding chapter, and is further illustrated by twenty drawings in plates sixty-one and sixty-two. Thus, it will be perceived, we are in the last six plates furnished with a valuable series of prints (seventy-one in number), exhibiting the ordinary and the unusual causes which interfere with healthy urination, and many of the bad effects resulting from careless efforts to relieve the difficulty.

In our notice of one of the preceding parts of this valuable publication, we took occasion to allude to the philosophical analogies which Mr. Maclise pointed out as traceable between organs and parts apparently dissimilar. The author is evidently fond of studying anatomy as a science embodying profound laws of harmony and beauty, and of endeavouring to unravel these. But, however praiseworthy and deserving of encouragement this may be, and however much it elevates the study of anatomy above the mere grasping after isolated facts, there is certainly the same danger of drawing false analogies and inferences here, as in every other similar investigation; in mineralogy, geology, or botany, for example. And in the last chapter, we think that Mr. Maclise has stumbled upon this very difficulty. He says, p. 133, "The prostate is peculiar to the male body; the uterus to the female. With the exception of these two organs, there is not another which appears in the one sex, but has its analogue in the other; and thus these two organs, the prostate and the uterus, appear, by exclusion of the rest, to approach the test of comparison by which their analogy becomes as fully manifested as that between the two quantities $a-b$, and $a+b$: the only difference which exists depends upon the subtraction or addition of the quantity, b. The difference between a prostate and a uterus is simply one of quantity, such as we see existing between the male and female breast. The prostate is to the uterus absolutely what a rudimentary organ is to its fully developed analogue," &c. He also says, "This body is not a gland any more than is the uterus;" "the prostate has no function proper to itself *per se*;" "in texture the prostate is similar to an unimpregnated uterus. In form, it is, like the uterus, symmetrical. In position, it corresponds to the uterus. The prostate has no ducts proper to itself. Those ducts which are said to belong to it (prostatic ducts) are merely mucous cells, similar to those in other parts of the urethral lining membrane," &c. We have always regarded this hypothesis as a sort of *transcendentalized transcendentalism*. The optics and the sensorium which can see as much resemblance between a prostate gland and a uterus as between a male and female breast, or a vertebra of the lumbar region and one of the bones of the coccyx, must be as far removed in perceptive powers above those of Swedenborg and his most favoured disciples, as heaven is high above the earth. Mr. Maclise's assertion that the prostate is not a gland, and that it

has no ducts, may be met by reference to the dissections of this body by Henle, Huschke, Müller, Quecket, Jones, and others, who describe its follicular structure, and the little ducts which issue from these follicles, lined by a continuous epithelial membrane, and containing the same fluid. Its function is not positively known, it is true; but the suggestion of Mr. Adams (Vid. *Cyclop. Anat. and Physiol.*, part 31, p. 154), that the acidity of its secreted fluid may serve to prevent the tendency to inspissation of the alkaline spermatic secretion, and thus to favour the ejection of the latter, may be the clue to its real purpose in the economy. And if an analogue to the uterus be wanting to render the male complete in Mr. Maclise's view, surely the "*utriculus prostaticus*" offers a much more striking analogy to that organ, in its shape, and in its position between the two ejaculatory ducts, which, though they do not generally open into it, do occasionally communicate with its interior, as is said by some anatomists. Huschke, who has paid considerable attention to this curious anatomical question, draws the following inferences from his observations: 1st. That the "utriculus" is a male uterus. 2d. That it is originally a receptacle of spermatic fluid. 3d. That its development bears an inverse proportion to that of the true seminal vesicles and the prostate gland, perhaps even in man. 4th. That it is at a late period a mere rudiment of fœtal life, divested of all importance. (Huschke, *Encyclopédie Anatomique*, vol. v. p. 382.)

But this is a mere wandering of the imagination on the part of Mr. Maclise, and does not in the least detract from the merits of his most valuable contribution to surgical science. We will not quarrel with him on this account; "aliquando dormitat bonus Homerus." F. W. S.

Art. XIII.—*Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications.* By Golding Bird, A. M., M. D., F. R. S., F. L. S. Assistant Physician, and Lecturer on Materia Medica and Therapeutics, at Guy's Hospital, &c. &c. &c. Second American, from the third and enlarged London edition. Philadelphia: Blanchard and Lea, 1851.

This work of Dr. Bird has, through its former editions, acquired a celebrity which places it among the standard publications of the day; and would require but the announcement only of a new edition, were it not that it has received, at the author's hands, so complete a revision as to render it quite as much a new work as many which are issued from the press under this title. After the first thirty pages, it will be found, on comparing this with the former editions, that the changes and additions are so frequent as to preclude any design of their enumeration. Every two, or more pages, there appear new wood-cuts, additional observations, and the incorporation of later information of an authentic character, and re-modification of former statements in correspondence with the present condition of our knowledge in this department; presenting, in a succinct form, a complete view of the state of investigation in this speciality of medical science. The existence in the urine of creatine, creatinine, and other substances found in flesh; of fatty matters; of casein during lactation, &c.; variation in the appearances of this secretion in colour from excess of purpurine, in consistence from urate of ammonia, in quantity sufficient to gelatinize on cooling; alteration in composition from the nature of ingesta, and period of taking the food, and from functional and organic disease in the different organs, together with the pathological indications to be derived from this source, are some of the points which have engaged the author's attention. Therapeutic indications in the varied conditions of the urine are also noticed, and the effects of remedies: as colchicum on the secretion of uric acid, and the oxalic diathesis; borax, phosphate of soda and ammonia, &c., in retaining uric acid in solution, &c. Although this notice comprises, in a very general manner, but a portion of the new matter introduced, it suffices to present an idea of the extent of revision to which the work has been subjected. The American edition has been issued in form and size to correspond with the allied works proceeding from the same publishers, and is well suited to the convenience of the student. R. B.

ART. XIV.—*Principles of Physiology, General and Comparative.* By WILLIAM B. CARPENTER, M. D., F. R. S., F. G. S., etc. etc. etc. Third edition. With three hundred and twenty-one wood engravings. Philadelphia: Blanchard and Lea, 1851. 8vo. pp. 1098.

THE necessity of an acquaintance with the physiology of the human organism as a guide in the investigation of its various pathological conditions is now universally admitted. Every means, therefore, calculated to facilitate the study of the actions of living organized matter, from the simplest to the most complicated forms in which it presents itself, with the forces by which these several actions are produced, governed, and modified, and the reciprocal relationship they hold to each other, becomes of importance. One of the most efficient aids to this study is unquestionably comparative physiology. Commencing with an investigation of the vital forces and functions exhibited in the lowest order of living beings, and, as we ascend upwards in the scale, tracing the modifications in the structure and vital actions, as the organism becomes more and more complex, and new forces are brought into operation, and new functions are developed, we are enabled, in some measure, to study the physiology of the several vital forces and functions separately, and are thus better prepared to understand the operation of these forces, and the true character of these functions in the complicated organism of the higher class of animals and man.

The attempt to analyze the different functions of living organized matter, and the forces by which they are maintained and governed, by venesection and other experiments performed on living animals, cannot lead in every instance to satisfactory conclusions, from our inability to determine whether the phenomena produced are not due more to the violence inflicted by the experiment than to the isolation of parts intended to be affected by it. Although the facts derived from comparative anatomy may not be sufficient to do away entirely with the necessity for experimenting upon living animals, still so far as these facts go they furnish conclusions of a more positive and satisfactory character. It is from these facts alone that we can expect to derive any insight into the supposed correlation of the several vital forces, and of these with the purely physical forces operating in the inorganic world; and as the establishment of such a correlation would lead us to a clearer conception of vitality than we have yet attained, the study of comparative physiology becomes, even in this particular, one of primary importance. In whatever point of view, in fact, the subject is viewed, whether as an interesting branch merely of natural philosophy, or as a guide to the more intricate questions connected with the physiology of man, the study of comparative physiology becomes a desirable, if it be not an essential branch of medical education.

The work of Dr. Carpenter obviates every objection that might be advanced to entering upon this study from the want of a clear and comprehensive treatise embracing a correct view of the existing state of knowledge in reference as well to general as to comparative physiology. Availing himself of the best and most recent information he could procure upon each department of the subject, and devoting considerable time and attention to the verification of the statements of other observers, especially on points under dispute, he has orderly and methodically digested and arranged the materials thus obtained, as well as a large amount drawn from his own original inquiries, so as to place the knowledge of many within the reach of any one who may feel desirous of acquiring it with no further trouble than the careful perusal of a few hundred pages, the production of which has cost the author much and prolonged labour.

Dr. Carpenter has succeeded so well in embodying in the present treatise the general aspect of the science of which he treats, and in teaching the leading facts embraced in it, in a style so plain and withal so explicit, that many who commence the volume without any design of studying it thoroughly, will be allured onward until they shall have mastered the whole of its interesting contents.

Though professedly the third edition of "The Principles of General and Comparative Physiology," the treatise before us is to be viewed in some measure

as a new work. Out of the 1080 pages of text, not above 150, or less than one-seventh, belong to the previous edition; this fact evinces the desire of the author to spare no pains, in order to render the volume a faithful exposition of the present state of physiological science.

To present an analysis of so voluminous a work as the present, in which so many subjects of deep interest are treated of, and so many intricate questions, connected with the biotic forces and actions, are discussed, would be impracticable; and to enter into a criticism of the several doctrines inculcated would necessarily extend our notice to an unreasonable extent. Notwithstanding, as already remarked, the author has, in the selection of his materials, endeavoured to avail himself of the best and most recent information he could procure, it is scarcely to be expected, as he himself remarks, that he should be equally well informed upon every point, and those who have followed particular departments into detail, will doubtless find scope for criticism in what they may regard as deficiencies or even errors. Dr. Carpenter desires that his work may be estimated by its general merits; and rather by what it *does* than by what it does not contain. It would have been, he adds, far easier to expand it by *mere compilation* to twice its present dimensions, than it has been found to compress the collected materials within the space they even now occupy.

It is to be regretted that Dr. Carpenter should be allowed to anticipate not the slightest pecuniary recompense for the time and labour he has bestowed upon the production of the valuable treatise before us, but, on the contrary, a certain loss, involved in the relinquishment of other literary engagements of a remunerative character. We are assured that the sale of the entire edition will not do more than remunerate his liberal publisher for the very large outlay which he has incurred in bringing out the work, and more especially for the beautiful series of illustrations with which it is embellished. We had hoped that, inasmuch as the work of Dr. Carpenter is the only systematic treatise, embracing the principles of general and comparative physiology, within the reach of the English student, this, in connection with its intrinsic value, would insure the sale of a sufficient number of copies and at a price to remunerate both publisher and author. D. F. C.

Art. XV.—*Transactions of the Medical Society of the State of Pennsylvania at its Annual Session, held in the city of Philadelphia*, May, 1851. Vol. I. Published by the Society. 8vo. pp. 128.

In the present volume of their Transactions, the State Medical Society of Pennsylvania give an earnest of their zealous co-operation with the societies of the other States in perfecting the organization of the medical profession throughout the Union, as well for the faithful administration of a correct ethical discipline among its members, as for the enlargement of the common stock of professional knowledge, by a careful study of the endemic diseases of each section of the country, in connection with its medical topography.

The session of 1851 was unquestionably a most interesting one, not so much from the importance of the business transacted, as from a good example being given in the reports received from a portion of the counties, which, it is believed, will be followed up at each succeeding session, until the materials shall be accumulated for a complete history of the medical topography and prevailing diseases of the State.

The reports embraced in the volume before us, though all valuable, differ considerably in their extent, and in the amount of positive observations upon which they are founded. Some can be considered only as outlines to be filled up, hereafter, by the results of further and more extended investigation; others, however, especially that on the topography and diseases of Berks County, are drawn up with great ability, and in their manner and matter may serve as models for future reports from the other counties.

The character of all of the reports before us is sufficiently encouraging, and, under all circumstances, equal to what we had a right to anticipate. It is only recently that any attempt has been made to organize the profession throughout Pennsylvania, and by concentrating the labours of the numerous talented physicians scattered over the interior of the State, in rural and often sparsely populated districts, to render available, for the instruction of all, the facts and deductions collected by each within his own field of observation. Many, immersed in the engrossing duties of a wide range of country practice, have neither the time nor inclination to draw up a formal report, but are able, nevertheless, to contribute valuable materials; and there is no section of the State in which a committee of medical men cannot be found fully capable, and no doubt willing, to arrange these materials in such a form for presentation to the State Society as shall do credit to it as well as to themselves.

Among the more important subjects that occupied the attention of the Society at the session, the record of the transactions of which is before us, are a registration of births, marriages, and deaths, throughout the State; the expediency of establishing a pathological cabinet; the gratuitous vaccination of the poor in every county of the State; and the protective powers of vaccination.

The vital statistics to be derived from a careful and continuous registration of the births, marriages, and deaths, which occur in the midst of any community, are essential not merely to settle questions relating to population, but to determine, by positive data, the proportion of the natural increase and mortality in different localities, and among the different classes of the community, with the view of ascertaining their comparative salubrity, the causes of any discrepancy in this respect, which may be found to exist between them, and the means by which such discrepancy may be obviated. By vital statistics, alone, can be determined the value of life in the different sections of a country, and in the different ages, occupations, and modes of living of its population; and they can alone lead us to the discovery of the measures necessary to equalize and augment the value of life in all. These are among the leading benefits to be anticipated from an accurate system of registration, and we are pleased to find the medical profession in Pennsylvania alive to the importance of this measure, and zealously engaged in obtaining the passage of a law by the Legislature of the State to carry it into effect.

Although there are some defects in the bill relative to registration passed at the last session of the Pennsylvania Legislature, and printed as an appendix to the present volume, still it is to be regretted that the Governor should not have seen proper to give it his approval. A registration being once established, there would be little difficulty in obtaining the amendments necessary to secure a more simple and efficient system.

In withholding his name from the bill alluded to, the Governor merely exercises a power secured to him by the constitution; we have no right, therefore, to complain, but it is to be hoped that the reasons he shall furnish to the legislature, at its ensuing session, will be of a character fully sufficient to warrant the jeopardy of so important a measure.

The report of the committee on a pathological cabinet deserves the serious consideration of all the constituents of the State Society. Valuable specimens of morbid anatomy may be collected by every physician in general practice; but this is seldom done, few physicians out of our large cities having the leisure properly to prepare them for examination and preservation, or the conveniences for keeping them for future reference. A few isolated specimens, also, are but of little value to the pathological student, compared to an extensive and well-arranged cabinet. The liberal proposition made by the College of Physicians, if acted upon by the physicians of Pennsylvania, would, in a few years, place within their reach a cabinet in which all the leading forms of morbid structure could be studied with profit.

The gratuitous vaccination of the poor throughout the commonwealth is a measure in which every citizen is deeply interested. Even if the protection of the indigent classes from the suffering, the mortality, or the deformity, incident to small-pox, and the saving of the loss entailed upon the community by the death or decrepitude of vast numbers of its labouring population, and the expense

incurred for their support when sick or disabled, would seem to be sufficient considerations to insure the measure being carried into effect; but when we consider that, with a large portion of the population liable, upon the occurrence of an epidemic of small-pox or its accidental introduction by an infected person or clothing, to be attacked with that disease in its worst form, even many of those who, under ordinary circumstances, are fully protected by vaccination, are in danger of suffering, to a certain extent, from exposure to an air thus saturated with the poisonous miasm given off from the bodies of the sick, while their offspring, unless they could be conveniently and effectually vaccinated at the moment of birth, are liable to fall victims to the prevailing disease.

We are glad that the State Society has taken this subject in hand, and can entertain no fear that their appeal to the legislature in reference to it will be ineffectual.

The novel and startling facts and propositions, announced by Dr. Gregory of London, in relation to vaccine, small-pox, revaccination, and inoculation, and referred to in the report of Dr. Jackson made to this session of the State Society, are well deserving of a close investigation. If it be true that inoculation in persons over fifteen years of age, who had been previously vaccinated, produces a new form of papular disease, which is not contagious, is unattended with danger, and gives protection against small-pox for life, we have a discovery equal, if not superior, in importance to that of Jenner. If the correctness of this statement shall be established by a careful series of experiments, we shall have then a means of protection against small-pox more uniformly certain than vaccination, and disarmed of all the danger attendant upon variolous inoculation.

The State Society has very properly appointed a committee to investigate the accuracy of these conclusions of Dr. Gregory, in which he is said to be sustained by M. Cazenave, the celebrated dermatologist of Paris. It is to be hoped that the committee will not neglect the task confided to them; the means for its accomplishment are within their reach, and the medical profession throughout the State will look with anxious expectation for their report. D. F. C.

Art. XVI.—*History of Medical Education and Institutions in the United States, from the first Settlement of the British Colonies to the year* 1850; *with a chapter on the Present Condition and Wants of the Profession, and the Means necessary for supplying these Wants, and elevating the Character, and extending the Usefulness of the Whole Profession.* By N. S. Davis, M. D., Professor of Principles and Practice of Medicine in Rush Medical College, etc. etc. Chicago, 1851: 12mo. pp. 228.

In undertaking the office of historian of medical education and medical institutions in the United States, Dr. Davis has, evidently, been prompted by the best of motives. Unfortunately, however, he has mistaken his vocation. We admire the love he has evinced for his profession, and give him credit for the efforts he has made to elevate its character and extend its usefulness, by directing due attention to the moral character and proper education of those who would enrol themselves among its members. Of his honesty of purpose, no one has a right to doubt; and of his untiring zeal in the cause of professional reform we have all been witnesses. Still we must withhold from him our meed of praise when he claims it as the delineator of the domestic history of the medical profession; the means it has provided in this country for the instruction of its novitiates; and the institutions it has there organized, where its mission of good may be displayed, and its members made familiar with disease and the application of the means for its prevention and its cure.

There can be no doubt that a careful review of the condition of the medical profession and of medical education in these United States, from their first settlement to the present period, would be both interesting and instructive. In

such a review, attention should be paid to the character and professional standing of the physicians with which the country was supplied during the several periods of its colonial history, as well as subsequently to its organization as an independent nation; and an inquiry should be instituted into the influence which, previously to the establishment of regular medical schools, and for some time after, the leading physicians exercised, as private instructors, upon the character and condition of our profession on this side of the Atlantic. Pains should also be taken to trace the opportunities that were successively afforded for medical education; these at first, it is true, will be found to have been but few, casual, and imperfect, but augmenting in number, permanence, and importance, as the population increased, and medical services became more in demand, and were better compensated. By a candid examination of the state of medical education in this country, compared with the condition and wants of the people, we shall not find so much cause of complaint in regard to the actual neglect of professional instruction, and the ignorance and deficiency of skill in the medical men, during the period of our colonial subjection or in the early days of our independent existence. The fault has not been that the means for medical instruction adapted to the existing condition of the people, and in accordance with the former restricted character of medical science, were not afforded in this country at a sufficiently early period; but, on the one hand, that the means for professional education have not kept pace with the progress of our science and the rapid development that has been given to every department of human knowledge calculated to lead us to a knowledge of the etiology, the pathology, the prevention, and the cure of disease; and, on the other, that due care has not been taken to demand from all who would assume the duties and responsibilities of a practitioner of medicine, adequate moral and educational qualifications.

In the work before us, Dr. Davis professes to have embodied "all the facts in regard to the educational history of the medical profession in this country; and by a careful tracing of present evils and defects to their origin," to have furnished that information without which "no member of the profession can be prepared to act wisely his part in the great progressive movements of the age." He has unquestionably brought together much useful information in reference to the history of our profession, in this country, during former years, not certainly all that he might have collected by a little more research; nor has he always presented what he has collected with all the fullness and precision which are desirable. Nor has he always made the best use of his materials, by so arranging them as to present a broad and comprehensive view of the condition of the medical profession of our country, at different periods from its earliest settlement to the present.

Many of the important contributions to medical knowledge and literature, for which we are indebted to our older physicians, are correctly indicated in the present work; others, however, of equal value are left unnoticed. Dr. Davis evinces no great familiarity with the early history of American medical literature, having recorded as an entire blank a period during which many works of distinguished merit were produced, the greater portion of which are still received as authorities in reference to the particular subjects of which they treat.

In the closing chapter, are presented many important truths connected with the present condition and wants of the profession: truths which strongly press themselves upon our attention. We cannot shut our eyes to the fact that for a series of years the medical profession throughout our country has been rapidly deteriorating; that the qualifications of a majority of those admitted into its ranks are manifestly deficient; and that, in consequence, it has lost that high rank in public estimation which it is essential it should maintain to enable its members to fulfil successfully their important and responsible duties. It is unquestionably true that physicians have entailed much of the evil, under which they labour, upon themselves. And it will continue to be felt so long as private teachers will receive into their office, as medical pupils, individuals deficient in sufficient mental capacity, preliminary education, and moral fitness

to acquire a proper knowledge of the healing art, or to practice it with honor to themselves and benefit to their patients.

While there exists, in almost every State, a facility for the rapid multiplication of schools, with irresponsible faculties; and while the office of medical teacher is permitted to be assumed merely as a source of income by those who are unwilling to abide the slow acquisition of professional employment and its legitimate emoluments, it is impossible to expect that medical teaching will not be prostituted for the sake of gain, and that imperfectly educated and incompetent persons will not be graduated as physicians, to crowd the profession, lower it in the esteem of the public, and discourage from entering into its ranks such as can alone confer credit upon it by a conscientious and efficient discharge of its duties. What is the best remedy for these evils, we are not prepared to decide. Perhaps the one proposed by Dr. Davis might succeed, could it be carried into full effect. But until the members of the profession generally shall be brought to see that their true interests will be best promoted by excluding from among them all such as are not properly qualified to assume the duties and responsibilities of physicians; until they shall become united among themselves, and prepared to decide for themselves, without reference to the pecuniary interests or selfish rivalship of medical schools, what shall be the qualifications of those whom they are alone willing to recognize as regular practitioners of medicine, we fear the evil will rather increase than diminish. Even though a law were passed by every State separating the right of teaching from that of licensing to practice, and conferring the latter upon an independent board of examiners, the evil could not be remedied, but incompetent persons would still be admitted to disgrace the medical profession.

Fifteen years ago an excellent law was passed by the legislature of this State—the same law which Dr. Davis erroneously states was rejected by that body—which, had it been fully carried out by those who were its original projectors, might have been made the basis of an important reform in medical teaching; by giving to the student all the advantages to be derived from the instructions of the best teachers in the different branches of medical science our country could supply; and of an essential reform in the mode of conferring the diploma, which should be the passport to practice, by making it the positive testimonial of their qualifications, as determined by an independent and disinterested board of examiners, responsible for their acts to the great body of the profession throughout Pennsylvania. But, unfortunately, the temptations of ease, power, and emolument, held forth by the professorial chairs of our medical schools, caused the zeal of most of the early friends of this law to cool: and it has, in consequence, remained, until now, a dead letter on the statute-book of the State.

D. F. C.

Art. XVII.—*The Laws of Health, in relation to Mind and Body: A Series of Letters from an Old Practitioner to a Parent.* By Lionel John Beale, M. R. C. S. Philadelphia: Blanchard and Lea. 12mo. pp. 295.

In these letters will be found a very good summary of the laws of health: the importance of a knowledge of which to every individual who desires to enjoy to the uttermost, and to the latest possible period of human existence, the exercise of his physical and mental powers—to every one who would avoid the pangs of disease and premature decay, and preserve unimpaired the inestimable blessing of a sound mind in a healthy body—is enforced and illustrated in a manner well calculated to interest and instruct the popular reader.

It is unquestionably true, that "such books as the present cannot be too numerous, while the laws of health are so grievously disregarded," not only by parents, who, in the proper or improper training of their offspring "from birth, through childhood, and to the eve of man's estate," have it in their power to bestow upon them a life of sickness and imbecility, or one of health, with phy-

sical, and moral, and intellectual vigour, but by nearly all persons in reference to themselves. The mass of mankind act as though all that relates to their organic well-being were unworthy their consideration. Many, indeed, would seem to imagine that a good constitution is an accidental inheritance, that health and disease are the mere offspring of chance, and that man can no more secure the one or avoid the latter, by attention to diet and regimen, to action and rest, to the material and amount of clothing, to the condition of the air he breathes and to the due exercise of his moral and intellectual powers, than he can, "by taking thought, add one cubit to his stature."

"That the body and the mind may be so trained as to resist disease altogether would be too bold an assertion, but it is certainly true of a vast number of the diseases which afflict our race." The daily duties of the medical practitioner bring to his notice many lamentable cases, where a small degree of knowledge of the laws of health would have most certainly prevented serious evils. Even those disorders which come upon the community suddenly from some unknown change in the constitution of the atmosphere that we can neither detect nor prevent, are less liable to attack, or, when they do attack, are ordinarily less severe in those who are guided by the laws of health.

In every point of view a careful study of these laws is important to all. It is upon a correct knowledge of them alone that must be based all sanitary reforms of a public character, whether in the construction, heating, and ventilation of buildings, the drainage and cleansing of cities, the discipline of schools, the regulation of labour in factories, and in the location and management of cemeteries for the dead.

All the bearings of the laws of health may not perhaps be so fully pointed out in the present work, or so fully elucidated, that it shall supersede the necessity of a more voluminous and complete treatise on the subject; still it is one well calculated to extend a knowledge of those laws—a knowledge in which every one is interested, inasmuch as upon a "due observance of them the value of life depends." D. F. C.

Art. XVIII.—*The Outlines of General Pathology.* By M. L. Linton, M. D., Professor of the Theory and Practice of Medicine in the Medical Department of the St. Louis University. St. Louis, 1851: 8vo. pp. 205.

We have seldom met with a medical work of so little pretension as this of Dr. Linton possessing the same amount of solid merit, and capable of interesting and instructing the reader to an equal extent. So plain, so simple, and so consistent are the general principles of pathology it inculcates; so seemingly in accordance are they with what we know of the physiology of man, and with the leading facts deduced from clinical observation and pathological anatomy; that they cannot fail to receive a favourable reception on the part of the medical profession. Even though upon more close investigation all the positions assumed by the author should not be found tenable, and in the complex organism of man it should be shown that other elements of disease may be engendered than those he has enumerated, still, in the present condition of medical knowledge, the outlines of general pathology of Dr. Linton will bear a very favourable comparison with any of the systems which are now credited as authorities. They are more simple and consistent than most of these, and are certainly, upon the whole, more truthful than some even of the more popular. We speak of these outlines, of course, only so far as they profess to teach the leading doctrines of disease, explanatory of its nature, elements, causes, and effects. As a system of general pathology embracing all the facts bearing upon the subject that have been accumulated and verified by the observations of the entire profession, to which character, however, they make no pretension, they unquestionably fall very short of numerous well-known treatises. It is as a faithful exponent of the general laws by which these facts are to be interpreted, alone, that the outlines of Dr. Linton can claim any merit.

There is no doubt that, upon a close criticism of each of the positions assumed by the author, we should find cause to question the entire accuracy of some few of them. We had in fact marked one or two for comment, but when we had gone through the entire work we were so much gratified with it, as a whole, that we felt disinclined to present objections to any portion of it, especially to such as involved no point upon which a difference of opinion might not exist without affecting the correctness of the general doctrines inculcated.

We strongly recommend the work to the attention of our readers, no one of whom, we are convinced, will regret the time devoted to its attentive perusal.

D. F. C.

Art. XIX.—*Lectures on Eruptive Fevers, as now in the Course of Delivery at St. Thomas's Hospital, in London.* By George Gregory, M. D., Fellow of the Royal College of Physicians of London; Physician to the Small-pox and Vaccination Hospital at Highgate; Corresponding Member of the National Institute of Washington, etc. First American edition, with numerous additions and amendments by the author, comprising his latest views. With Notes and an Appendix, embodying the most recent opinions on Exanthematic Pathology; and also Statistical Tables and Coloured Plates. By H. D. Bulkley, M. D., Physician to the New York Hospital, Fellow of the New York College of Physicians and Surgeons, etc. etc. New York, 1851: S. S. and W. Wood. 8vo. pp. 376.

These lectures present a very full and able account of the pathology and therapeutical management of a class of diseases which, from the frequency of their occurrence, and the fearful mortality attendant upon several of them, particularly interest every physician. The high professional standing and extensive experience of Dr. Gregory give to his opinions a degree of authority which, in connection with the character of the subjects discussed, renders the volume before us a highly important addition to our medical literature. It is calculated certainly to exert a powerful influence upon medical opinion and practice, in reference to the febrile exanthemata; and from the general accuracy of the views advanced by the author, we are happy to say that this influence will be a favourable one. Although we cannot agree with him in his opinions as to the uncertain and temporary character of the protection afforded by vaccination against the occurrence of small-pox, still, with the exception of this and a few other points of minor importance, his pathological and therapeutical teachings are, in the main, sound and judicious, and correspond with the general observations and experience of American practitioners.

Dr. Gregory divides the acute febrile exanthema into those "bringing life into hazard"—small-pox, measles, scarlet fever, and erysipelas; and those "not bringing life into hazard—the lesser exanthema." These he divides into two sections: "1. Vesicular affections, of which there are four: Vaccina, varicella, herpes, and miliaria. 2. The simple efflorescences, not leading to fluid effusion, of which there are also four—namely, lichen, urticaria, roseola, and erythema." These twelve forms of eruptive fever constitute the subject of the present series of lectures.

After noticing the large proportion—amounting in England and Wales to one-ninth—of the entire annual mortality produced by small-pox, measles, scarlatina, and hooping-cough, Dr. G. remarks:—

"If the exanthemata are considered independent of the hooping-cough, considerable fluctuations will be perceived, the mortality by them falling sometimes as low as six per cent., at times rising to near thirteen; but a very important principle comes into play here, which serves to equalize the amount of epidemic mortality. This curious doctrine has long been surmised, but was never proved until the statistical inquiries of recent times showed its correctness. We may, for want of a better name, call it the law of vicarious mortality, by which is understood, that whenever one epidemic diminishes, another in-

creases, so that the sum total of epidemic mortality remains on an average of years nearly the same."

This doctrine of vicarious mortality, which would appear to be fully borne out by the statistics adduced by Dr. G., as well as by those added by the American editor, and by other and more extended series that we have examined, is one which demands a close investigation, in order that its accuracy may be more fully tested, and its true bearing upon many interesting questions in vital statics clearly established.

Dr. G. doubts the commonly received opinion, that the specific fever of an exanthematous poison may occur without an eruption; he denominates it a "very questionable pathology, which he cannot undertake to advocate." That, during variolous, scarlatinous, and morbillous epidemics, many persons experience an attack of fever, and most of the general symptoms of the prevailing disease, without the occurrence of any eruption, is unquestionably true; but whether these persons can with propriety be said to have passed through small-pox, scarlatina, or measles, whichever may be the reigning malady—whether they are as fully protected from a future attack as those in whom the eruption occurs—is to us, however, very problematical.

Dr. G.'s opinion in regard to the pathological relationship of the different exanthemata is thus expressed: "In general, the distinctive characters of exanthematous eruptions are strongly marked, but difficulties in diagnosis do occur. Small-pox is sometimes mistaken for chicken-pox. Measles is not always readily distinguished from lichen.

"When the exanthemata first invaded the world, their identity was universally believed. Rhazes and Avicenna taught that small-pox and measles were the same disease. Even so late as 1640 this doctrine prevailed all over Europe. Measles and scarlatina continued to be confounded until about one hundred years ago; nor has the bias in favour of exanthematic identity which our ancestors displayed, altogether subsided. Dr. Thompson of Edinburgh laboured to prove that chicken-pox is identical with small-pox. Dr. Baron, Mr. Ceely, and others, who would be justly offended by the imputation of confounding scarlatina and measles, or measles with small-pox, contend, nevertheless, strenuously for the identity of small-pox and cow-pox.

"That the disorders termed exanthemata bear a certain pathological relation to each other cannot be denied; but this principle is not more applicable to small-pox and cow-pox than it is to small-pox and measles, to small-pox and chicken-pox, to measles and scarlet fever. The epoch of the diffusion of small-pox and measles gives a certain countenance to such a doctrine. The relationship may possibly consist in some modification of the elements which compose the morbid miasm, and may be analogous to that which subsists between the nitrous oxide, the nitrous acid, and the nitric acid. Such a relationship, however, if admitted, is very different from the absolute identity for which Dr. Thompson and Dr. Baron contend."

All the facts connected with the history of the various epidemics of the more important of the febrile exanthemata would seem to point out a very close relationship between them. Whether they are all mere modifications of one or two primary diseases, or whether their distinctive characteristics result from some change that takes place in the elements composing one common morbid miasm, is a question of no little interest, but at the same time, one that will probably ever remain unresolved. Even, however, admitting this close relationship, we are not prepared to admit their absolute identity. The diagnosis of scarlet fever, measles, and erysipelas, and of small-pox, vaccinia, and varicella is too decided, and their successive propagation with all their distinctive features too clearly established, to suppose them to be mere varieties of one and the same disease.

The third, fourth, and fifth lectures are devoted to the early history, phenomena, statistics, and management of small-pox. They present under each of these heads every important particular connected with the history of the disease from its first recorded appearance, with its symptomatology, pathology, and therapeutics.

Dr. G. evidently considers inoculation to be a more certain protective against

the mortality of small-pox than vaccination; we should almost infer, from his arguments in defence of it, that he at the same time believes it to be nearly, if not equally, as safe in every point of view. We present his views on this subject, in his own words:—

"You will naturally wish to know what were the practical results of inoculation. I will tell you in a few words. Its influence in lessening the mortality of small-pox was something quite extraordinary, and scarcely credible. With ordinary precautions in the choice and preparation of subjects, not more than one in *five hundred* cases will terminate unfavourably. The ill success which attended the early inoculations, between the years 1722 and 1730, arose entirely from bad management, from the most culpable negligence in the choice of subjects, and an utter ignorance of all the principles by which the practice of inoculation should be governed. Had not the discovery of Jenner interfered to interrupt its extension and improvement, inoculation would have continued to this day, increasing daily in popularity. It cannot be doubted that improvements in medical science generally would have shed additional lustre on this practice.

"Since the introduction of vaccination, it has been the fashion to decry inoculation, and to impute to it mischief of which it was not guilty. The great objection made to inoculation, and that which recently induced Parliament to abolish it altogether under heavy penalties, was, that it disseminated the virus, and multiplied the foci of contagion. Dr. Watkinson and Dr. Schivenke, in 1777, and more recently Dr. Adams, broke the force of this argument, by pointing out how important a part epidemic influence plays in the diffusion of variola. Had they lived in our times, how strongly would they have fortified their arguments? We saw, in 1838, an epidemic small-pox raging in London, where inoculation had long been discontinued. The admissions into the Small-pox Hospital in that year exceeded those of 1781 and of 1796. Inoculation was abolished throughout England and Wales in 1840, and the act has been most rigidly enforced; yet, during the last two years, small-pox has visited every county of England.

"Sir Gilbert Blane has attempted to prove by statistics the evils of inoculation. He has shown that the proportion which the mortality by small-pox, in London, bore to the general mortality, increased, during the last century, from 78 to 94 per thousand; but many circumstances must receive attention before we are justified in drawing conclusions from this fact. The population increased prodigiously in the interval, more indeed than would suffice to explain the increased mortality by small-pox. But further, the general mortality diminished. Consequently, though the actual mortality by small-pox had remained stationary and uninfluenced by population, its ratio to the total mortality would appear to augment. Thirdly, Dr. Adams has shown that a correspondent increase took place in scarlet fever and hooping-cough, which are not communicable by inoculation. Lastly, a different mode of calculation would exhibit a very different result. The sophism consists in arranging your figures so as to include or exclude years of epidemic prevalence. If, for instance, we divide the last ninety years of the eighteenth century into three periods, we shall find that the recorded deaths by small-pox were as follows: 1711 to 1740 (when there was no inoculation), 65,383; 1741 to 1770 (when inoculation was coming into general use), 63,308; 1771 to 1800 (when inoculation was almost universal), the deaths were only 57,268; so that by this showing, inoculation diminished the mortality by 8115 lives.

"Statistics are very useful, and deservedly carry great weight with them; but they may be enlisted, with a little management, on both sides of an argument.

"One subject only remains for our consideration, and that is, the question whether any circumstances would still warrant us in recommending inoculation on scientific principles? Concurring most cordially in opinion that the practice of inoculation by *unqualified* persons ought to have been put down (not in 1840, but forty years before that) by stringent legislative enactments, I still remain of opinion that, under several circumstances, it is the duty of a medical man to recommend inoculation. These circumstances do not, indeed, often occur; but the legislature would hardly wish to control and fetter, even in a

single case, the deliberate judgment of a physician, acting for the benefit of his patient. I will name to you four of these cases: 1. When a person has been found, from peculiarity of habit, unsusceptible of vaccination. 2. When new sources of vaccine lymph are introduced, and it becomes of importance to ascertain that the new virus is efficient. 3. When young persons (between the ages of ten and twenty), vaccinated in early life, are proceeding as cadets to India. 4. When small-pox unexpectedly breaks out in a country district, at a time when (even with the facilities of a penny post) vaccine virus is not to be obtained. Other cases equally strong might be put."

This special pleading in favour of the safety of inoculation will be very readily overturned by a careful analysis of the statistics exhibiting the comparative mortality produced by small-pox prior to the introduction of inoculation, during the period of its general practice, and subsequent to the introduction of vaccination, as collected by different writers of Europe and America. In the Appendix to the present edition, Dr. Bulkley has presented sufficient evidence to show the general inaccuracy of the author's conclusions. There is great truth and good sense in the following remarks of the editor:—

"However great may be our indebtedness to inoculation for the amount of life saved by it to mankind, and we freely acknowledge it to have been great, we cannot but feel that the practice can never be relieved from the objection of multiplying foci of contagion; and while we concede that its continued employment would doubtless have led to great improvement in the mode of conducting it, and to still more decided benefits from it, with probably diminished risk of communicating it beyond the individual operated upon, we cannot be too grateful for the substitution of another protective power, apparently equally efficacious in its results, and almost entirely free from the charge of the least danger, in itself, either to the individual or to those about him. At the same time, we fully agree with our author, that there are circumstances which would warrant its adoption in special cases, and with proper restrictions, and that those mentioned by him come under this head; and we could even add to the list. It is not denied that inoculation may be perfectly safe, so far as the individual on whom it is performed is concerned, and that it may be a valuable test of his protection from casual variola: but the fact that, however mild in itself, it may communicate the most malignant form of the disease to another, is one which renders it a dangerous agent, the use of which, independently of other reasons, should be restricted within narrow limits, and, indeed, prohibited altogether, from the risk unavoidably attendant upon its general employment."

The sixth lecture presents a most excellent and sufficiently full summary of the pathology and treatment of measles, while the two ensuing lectures are devoted to the consideration of scarlet fever. The description of the several forms under which the disease ordinarily presents itself, and of its usual sequelæ, is clear and accurate. In treating of the pathology of the disease, Dr. G. remarks that, while "no doubt exists that, in a very large proportion of cases, scarlet fever is the product of a specific miasm," still, "the question may well arise, whether any combination of circumstances can develop an eruption possessing the characters of scarlatina," and he admits that his testimony is in the affirmative.

"I have seen scarlet eruption," he adds, "in no respect different from that of ordinary miasmatic scarlatina, arising from exposure to cold and moisture, and I often see true scarlatinal eruptions occurring in the progress of the secondary fever of small-pox, without any grounds for believing that contagion had operated. It seems as if secondary fever can develop this eruption in the same way as it throws out erysipelas."

We are familiar with an eruption closely resembling that of scarlatina, occurring under the circumstances referred to by Dr. G., but believe it to be of a very different character from the latter. The persons in whom the eruption occurred could not with any propriety be said to be labouring under scarlet fever. Of the occurrence of true scarlatina independent of exposure to any specific poison emanating from the bodies of patients affected with the disease, there can be no doubt; that epidemical visitations of the fever may occur from some morbid condition in the atmosphere, is, we believe, very generally admitted; but in the

absence of this epidemic influence, we have repeatedly observed sporadic cases of unquestionable scarlatina occur under circumstances where it was impossible that the patients could have been exposed to contagion either directly or through the medium of fomites.

On the subject of bloodletting in scarlet fever, Dr. G. makes the following judicious remarks:—

"Some physicians discourage all loss of blood in scarlatina, as being foreign to the genius of the disease. Others strongly advise it. Much will depend upon the character of the symptoms, the period of the disease, the condition of the patient; but I wish to impress upon you strongly, that scarlet fever not only admits of bloodletting, but often imperatively requires it, and that on general bleeding alone the safety of the patient often depends."

"While I thus advocate the necessity of bloodletting in certain cases, I freely acknowledge that it is inapplicable to others. You would not always do harm by the attempt (for it is one thing in scarlet fever to open a vein, and another to draw blood); but any such indiscriminate use of the remedy would expose you and the remedy to just reproach. The successful treatment of the disease by bleeding in one epidemic, at one season, and in one district, does not authorize the same procedure in another epidemic, a different season, or a different locality."

"Local bloodletting is well adapted to many cases of scarlet fever—to cases accompanied with great determination of blood to the throat—to cases attended with headache or threatening coma." "In the management of the several inflammatory sequelæ of scarlatina (otitis, ophthalmia, and pneumonia), leeches and cupping are quite indispensable.

"Leeches generally bleed profusely in scarlatina, from the excited state of the cutaneous circulation. Four leeches in scarlatina will often do as much as twelve in typhus. It becomes occasionally necessary to stop the bleeding, which lunar caustic will do effectually. This tendency of leech-bites is always to be kept in view, but especially in the scarlet fever of young children. The child's life might otherwise be sacrificed, and the measure itself brought unfairly into disrepute."

"I cannot doubt but that a large proportion of cases of scarlatinal dropsy arise from the neglect of measures which ought to have been adopted in an earlier stage of the disease. If a certain amount of bloodletting, a certain number of doses of calomel and jalap, a certain amount of rest and abstinence had been indicated, but neglected or withheld, then, when dropsy occurs, the deficiency must be made up. The same things must be done late, which ought to have been done early."

Erysipelas is the subject of the ninth lecture. This disease, though not properly an exanthem in the strict pathological meaning of the term, bears, however, in many of its features, so close an affinity with the febrile exanthemata, that it is most conveniently treated of in connection with them. Erysipelas is, properly speaking, inflammation of the skin, and very commonly also of the subjacent cellular texture. Very good reasons might be advanced, therefore, why it should be transferred to the phlegmasiæ; but, with our author, we consider this a subject "not worth wasting time about."

In considering the causes of erysipelas, and the manner in which it spreads, Dr. G. first adduces the facts which prove it to be an epidemic malady, and which satisfactorily, to his mind, show that its most important source is miasmatic; he then explains the reasons which induce him to believe that this miasm, when formed, is capable of propagating itself by contagious emanations, and, in conclusion, points how erysipelas originates from causes not of a specific nature, some internal and others external to the human frame.

After referring to facts bearing upon the epidemic and contagious character of the disease recorded by Sauvages, Baillie, Calmeil, Velpeau, Blache, and Chomel, and the list might have been extended to a much greater length, Dr. G. remarks:—

"A connection of more than twenty years with the Small-pox Hospital has given me abundant opportunities, not only of confirming the truth of these positions, but of showing that we may carry our views much further. I feel

persuaded, 1st. That erysipelas may commence in a hospital without the suspicion of importation. 2. That being so generated, from bed to bed, it may spread by contagion. 3. That the miasm generating erysipelas is identical with that which, in lying-in hospitals, generates puerperal peritonitis, which, in foundling hospitals and workhouse nurseries, gives rise to pudendal gangrene and umbilical ulceration; which in army hospitals generates hospital gangrene; which in hospitals differently circumstanced, is found to occasion a malignant form of cynanche, both mucous and cellular, with otitis, glossitis, an asthenic form of laryngitis, and sometimes the most aggravated form of typhus gravior."

"The dependence of erysipelas on a miasm *sui generis* is no new doctrine. It has been stated, over and over again by individual writers, but it has never, I think, been urged by systematic authors with the importance which it merits; nor has the doctrine been received as one of the avowed axioms of pathology. Dr. Rollo, in a treatise entitled, '*A Short Account of a Morbid Poison acting on Sores*,' and published very early in this century, distinctly announces the principle, and illustrates the intimate connection between erysipelas and hospital gangrene."

The circumstances which lead to the generation of the miasm productive of erysipelas, which Dr. G. denominates "*ochletic miasm*"—from οχλος, a crowd, are, according to our author, 1st, and most important, overcrowding the wards of an hospital.

"But," he remarks, "it is not numbers alone which are to be considered; a ward might safely hold fifty cases of *simple* fracture, which would not with safety contain twenty cases of compound fracture. Something, therefore, depends on the nature of the disorder. All disorders which throw out diseased secretions are more apt to taint and vitiate the air than those where no such secreting process goes forward."

"Another element of great importance in determining the sources of ochletic miasm is the degree of attention bestowed on cleanliness. If the bed-linen, mattresses, palliases, sheets, and blankets be frequently changed, the floors well cleaned, and the walls frequently whitewashed; if the nurses be careful to carry away all foul secretions, and to purify the patient's body by abundance of soap and water; in short, if the internal regulations of the hospital be good, miasm would, I suppose, be rarely engendered, even though the wards were crowded."

"A fourth element must enter into the calculation, and that is a good supply of fresh air. This, by some, is considered all in all; but it is not so, and all the ventilation in the world, conducted on the most scientific principles, and superintended by Dr. Reid himself, would fail in preventing ochletic miasm, if feather-beds and bolsters, soaked in unhealthy discharges, are permitted to remain in the ward.

"Dr. Rollo has advanced a step further in the analysis of the sources of ochletic miasm, and maintains that the disposition to erysipelas and its co-relative diseases (puerperal peritonitis and hospital gangrene) depends partly on a peculiar but hitherto undetected condition of the atmosphere. He is led to this opinion by observing that erysipelas sometimes shows itself in the airiest, least crowded, and best regulated hospitals. Without stopping to inquire how much is due to this circumstance, we are fully warranted in saying that the state of the atmosphere must not be lost sight of in such an investigation. We know, on the authority of Dr. Lind, that in Batavia, and other localities notorious for malaria, hospital gangrene and erysipelas, and every sort of associated disorder, prevail with intensity at certain seasons."

The facts adduced by Dr. G. in proof of the spread of erysipelas by contagion bear no proportion to the vast amount of direct testimony that might be brought forward, from sources of unquestionable authority, in support as well of this position as that of the intimate correlation of erysipelas and puerperal fever. As we believe both positions to be well founded and of the highest importance in directing us to the prophylaxis of peritonitis in the puerperal female, we are gratified to find so popular and distinguished a writer as Dr. G. engaged in their advocacy. We have long maintained the contagious character of erysipelas and its intimate relation with child-bed fever, and have been considered as somewhat

visionary in so doing; the evidence in support of the accuracy of these opinions is constantly augmenting, and every day attracting increased attention.

A very good summary of the treatment of erysipelas is given. Although we cannot agree with the author in his estimate of some of the remedies that have been recommended in the disease, yet, upon the whole, his therapeutical directions are judicious.

In the tenth and eleventh lectures, Dr. G. gives the history, phenomena, practice, pathology, and results of vaccination. Dr. G. denies *in toto* the opinion recently promulgated, and adopted very extensively by the physicians of Europe and America—the identity, namely, of cow-pox and variola. The objections he adduces to this opinion are of great weight, and his conclusions would appear to be correct: namely, that

"Small-pox and cow-pox are antagonist affections—that cow-pox, instead of being, as Dr. Baron maintains, of a variolous, is, in fact, of an *anti-variolous* nature—that it alters and modifies the human constitution so as to render some individuals wholly, others partially, and for a time, unsusceptible of small-pox. Cow-pox and small-pox may be viewed as opposing powers, striving to gain the mastery of the human frame, and each, under different circumstances, and at different times, proving successful. The conclusion to which M. Bousquet (*Traité de la Vaccine*, p. 16) has come to, appears to me to be the just one. 'La vaccine,' says this acute writer, 'et la variole ne sont pas la même chose. Mais si elles diffèrent dans leur origine, dans leur principe, elles se suppléent merveilleusement dans leurs effets. Il n'y a pas entre elles identité de nature, mais il y a reciprocité d'action.' To my mind, nothing can be more satisfactory than such a conclusion."

We cannot see in what manner our confidence in its protective powers can in any degree be strengthened by supposing that the cow-pox is identical with small-pox, or how it is possible, as asserted by one writer, "that a conviction of the non-identity of the two diseases would go far to shake *in toto* our belief in the real efficacy of vaccination." Our confidence in the efficacy of vaccination is founded solely upon the well-established fact that the great majority of those who have been placed fully under its influence resist the infection of small-pox under every degree of exposure. A knowledge of the true nature of the vaccine disease would be interesting, perhaps useful; but it can neither strengthen nor overturn the fact just referred to.

Dr. G. believes that the protection against small-pox afforded by vaccination diminishes or wears entirely out in a few years.

"It is a matter of general notoriety," he remarks, "that small-pox is very seldom taken by vaccinated children who are under the age of eight years. In the course of a long experience at the Small-pox Hospital, I have never seen more than three or four instances of such an occurrence. The protective power of cow-pox may, therefore, for all practical purposes, be considered as *complete* for that period; but we are compelled to confess that later in life it diminishes in a certain proportion of cases. What the exact proportion of cases is, never has been ascertained, and, for very obvious reasons, never can be known or even guessed at.

"But although this be impossible, there seems no reason why we should not attempt to ascertain the laws which affect and limit that power of resistance to the variolous virus which cow-pox displays in so many instances, and so remarkably in infantile life. I have mentioned puberty as a disturbing cause. I have no doubt that others exist, of equal, perhaps of superior efficacy. Among them may be mentioned change of climate, which appears to have a very marked influence, sufficient to induce us to recommend the re-vaccination of all young people going to or returning from India. A severe fever, in like manner, may so alter and modify the general mass of fluids as to open a door to the reception of the variolous effluvium. Importance should be attached also to the epidemic constitution of the season. It is certain that persons who under common circumstances have, through the agency of the cow-pox, resisted the variolous miasm, succumb to it under epidemic visitation."

"The preceding tables"—tables given in a former part of this lecture, but which we have not considered necessary to copy—"while they certainly counte-

nance the notion of diminished vaccine energy, through the medium of those changes which time effects in the frame, prove, at the same time, most incontestably, that a portion of virtue still clings about the system, sufficient to preserve life, though not to exhaust susceptibility. To determine with accuracy the average ratio of mortality which obtains when small-pox invades those who have been well vaccinated, is a point which the statistical records of the last twenty years teach us with considerable precision. You will remember that small-pox in former times (and among the unprotected in recent times) proved fatal at the rate of twenty-five, or from that to thirty-three per cent. (one out of four, or one out of three.)

"*Table showing the Rate of Mortality by Small-pox after Vaccination at Different Periods and in Different Parts of the World.*

Locality.		Number of cases.	Deaths.	Rate of mortality per cent.
Small-pox Hospital, London,	1826 to 1832	619	40	7
"	1833 to 1839	900	60	7
"	1840 to 1846	1011	64	6½
Total at "	1826 to 1846	2530	164	7
British army	1834 to 1838	1025	122	12
Copenhagen	1824 to 1835	3093	66	2
Wirtemberg	1831 to 1836	1055	75	7
Vienna	1834	200	16	8
Ceylon, Epidemic of	1830	260	34	13
"	1833 to 1834	341	23	7
	Total	8504	500	6

"The above table, compiled from various sources, will show how great is the diminution in the ordinary rate of mortality by small-pox, when vaccination has preceded. It will be seen that the average rate is then six per cent., the maximum being thirteen, and the minimum two.

"The result of these statistical investigations may be stated to you in a few words. Small-pox in the unvaccinated is five times more fatal than it is to those who have previously undergone vaccination. The following table, carefully drawn up from the records of the Small-pox Hospital for the year 1841, shows you how this is effected. It is an analysis of the several cases admitted in that year, having small-pox after vaccination. It will be seen that nearly two-thirds of the cases (or sixty per cent.) received the disease in a modified form. The remainder (forty per cent.) received it in a normal form, but in variable degrees of intensity, the mortality among *them* following the ordinary law.

"*Analysis of one hundred and fifty-one cases of Small-pox succeeding Vaccination, which occurred at the Small-pox Hospital in* 1841.

			Admissions.	Deaths.
Normal	56	Confluent	25	8
		Semi-confluent	19	0
		Distinct, regular	12	1
Abnormal or modified	95	Confluent, modified	18	0
		Semi-confluent, modified	19	1
		Varicelloid, or distinct modified	58	0
		Total	151	10

"Deducting the two deaths among the milder cases, which were the result of superadded disease, there remain eight deaths. Now, supposing that these 151 persons had never been vaccinated, the mortality would have been at least five times eight, or forty, and might, under unfavourable circumstances, have reached fifty. Such appears to be the actual amount of the protection which vaccination affords, and with it, such as it is, we must, I believe, rest satisfied. My firm persuasion is, that no additional precautions on the part of vaccinators, and no alterations in the kind of lymph employed, will have the slightest effect on the general results."

The number of the vaccinated who are liable to an attack of small-pox, in either its normal or modified form, will depend very much upon the greater or less care that has been taken to place the systems of all subjected to the operation fully under the vaccine influence. That all who are reputed to have been *successfully* vaccinated, are not thus completely infected, there cannot be a doubt. Independently of gross ignorance and carelessness on the part of vaccinators, there are many circumstances that may occur to interfere with the regular progress of the vaccine vesicle, and to prevent the system from being brought perfectly under the protective influence of the vaccine infection, that cannot always be anticipated and guarded against; consequently, there will be in every community, even in those where vaccination is most extensively and carefully practiced, many who are but partially protected against small-pox, from the imperfect manner in which they have undergone that process, while others are placed in the same predicament from the possession of some constitutional peculiarity, in consequence of which their systems cannot by a single, nor often even by repeated vaccination, be brought entirely under the influence of the vaccine influence. Now, we have no other test that an individual is fully protected by vaccination than the repetition of the operation after some interval of time; and, at the same time, by this re-vaccination, we remedy, in most cases, the imperfect infection produced by the previous operation.

It is true Dr. Gregory would appear to be rather opposed than favourable to re-vaccination; nevertheless, the weight of testimony is decidedly in favour of the operation. The physicians of this city, who were at first adverse to re-vaccination, have become convinced, from personal experience, of its value, and now, very generally, practice and advocate it. A respectable array of evidence in favour of this measure, derived from the experience of the physicians and institutions of Europe, where re-vaccination has been practiced on a large scale, and in a manner well calculated to test its results, is given, in the Appendix to the present edition, by Dr. Bulkley.

Of the two remaining lectures, the thirteenth and fourteenth, the one is devoted to the consideration of the vesicular eruptions, and the other to a short notice of the non-contagious efflorescences. This portion of the work may be consulted with profit by the student. The information in respect to the pathology of the diseases comprised under the two general heads, though concise, is clear and accurate, and the directions for their management plain and judicious.

The Notes and Appendix of the American editor form an interesting addition to the text of Dr. Gregory. They enhance materially the value of the present edition of his lectures. D. F. C.

Art. XX.—*Elements of General and Pathological Anatomy, presenting a View of the Present State of Knowledge in these Branches of Science.* By David Craigie, M.D., F.R.S.E., etc. etc. Second edition, enlarged, revised, and improved. Philadelphia: Lindsay and Blakiston, 1851. 8vo. pp. 1072.

The treatise of Dr. Craigie, though less full, perhaps, in some particulars than could be desired, and especially in reference to the morbid changes detected by the microscope, to which, within a recent period, so much attention has been paid by the physicians of continental Europe, is nevertheless one of the best compendiums of the elements of general and pathological anatomy we possess. By availing himself of the most reliable sources for his materials; by comparing and generalizing, with fidelity, the results arrived at by those who have investigated with the greatest care the leading subjects embraced in the general plan of the work; and by arranging, in a connected and systematic form, those deductions and inferences that are justified by an accurate analytic collation of the best authenticated facts, Dr. Craigie has succeeded in placing within the reach of the student a volume well calculated to furnish him with correct statements and useful information on the nature and distinctive characters of diseases, as revealed to us by pathological anatomy.

In preparing the present edition, all the materials of the first have been employed. But they have been greatly increased by the introduction of new mat-

ter under the proper heads, in order to carry forward to the present time the information acquired since the appearance of the first edition. Numerous rectifications, both in healthy and morbid anatomy, have also been made.

Besides the changes now mentioned, two new books have been added: one on the structure and morbid states of the glands; the other on the structure and morbid states of the lungs and heart.

There is but one department of pathological anatomy not embraced in the present volume, and that is local diseases, and those varieties of malformation which consist in misapplications of the component parts of organs. In noticing this omission, the author, in his preface, remarks, that these subjects, it is almost superfluous to say, cannot, without a violation of the principles of arrangement, be introduced in a work on general anatomy; on this account, however reluctantly, he has been obliged to exclude them almost entirely, unless so far as their general characters could be stated. D. F. C.

ART. XXI.—*The Microscopist: or a Complete Manual on the Use of the Microscope: for Physicians, Students, and all Lovers of Natural Science.* With illustrations. By JOSEPH H. WYTHES, M. D. Philadelphia: Lindsay and Blakiston, 1851.

THIS is the title of a handsome little book, of 182 pages 12mo., which is neatly printed, and is illustrated with many well-executed wood-cuts.

As this is the first American work upon a subject which is now exciting considerable attention, it will probably be extensively circulated and read. We regret that it is not better calculated to advance the knowledge of the microscope, and its relations to natural and medical science. A "*complete* manual" on this subject would be a valuable acquisition to the American student of medicine and of general science; but every one who purchases this book with the expectation of becoming thoroughly acquainted with the instrument, either practically or theoretically, will be exceedingly disappointed.

A student possessed of a microscope can learn nothing of its plan of construction or its manipulation unless it happens to be of the same form and manufacture as that figured on the frontispiece.

The table of contents is sufficiently full. It contains, Chapter I. History and importance of the microscope. II. The microscope. III. Adjuncts to the microscope. IV. How to use the microscope. V. On mounting and preserving objects for examination. VI. On procuring objects for the microscope. VII. Test objects. VIII. On dissecting objects for the microscope. IX. The cell-doctrine of physiology. X. Examination of morbid structures, &c. XI. On minute injections. XII. Examination of urinary deposits. XIII. On polarized light. XIV. Miscellaneous hints to microscopists. But the amount of information upon each of these subjects is so extremely limited that the book will be found entirely unsatisfactory to all but those who are content with a superficial knowledge of the subject.

What is said concerning the history of the microscope, its adjuncts, and their uses—the procuring, preparing, and mounting objects—is taken principally from Queckett's work, to which all those interested in the microscope had better directly refer for information. The chapters on the cell-doctrine, morbid products, and urinary deposits, subjects particularly interesting to the physician, are extremely meagre; of course they cannot be otherwise in a work of this size. They would fail to instruct a student who was entirely ignorant of the subject; and a properly educated physician would merely be reminded of text-books and well-known treatises of the present day.

Since, therefore, it contains nothing new concerning either the philosophical, mechanical, or practical bearings of the microscope, and certainly nothing original in minute anatomy, physiology, or pathology; and since it contains so little of that valuable information which is already published in works quite accessible, we are at a loss to conceive of any benefit which will be conferred by its publication. J. N.

ART. XXII.—*The Philosophy of Vital Motion.* By CHARLES BLAND RADCLIFFE, M. B., Licentiate of the Royal College of Physicians; Lecturer on Vegetable Physiology and Botany at the Westminster Hospital, etc. etc. London, 1851. 8vo. pp. 158.

WE believe that we shall best communicate to our readers an idea of the kind of philosophy taught in the volume of Mr. Radcliffe, by presenting to them the author's preface, which is as follows:—

"In a work lately published under the title of '*Proteus, or the Law of Nature*, I have endeavoured to realize that unity, or τὸ ἓν, which is said to ensoul the diversities of things, and bind them together in one. I have traced this principle in plant and animal, not merely as a vague generality, but as pervading the entire structure—from a simple organ to a perfect organism, and from the complicated nervous, vascular, or osseous systems, to the more rudimentary parts of the economy. I have traced, also, the same principle into inorganic bodies; so that, in relation to form, we may conclude that there is one archetypal law in all created things, whether animate or inanimate. Heat, light, chemical affinity, electricity, motion, and other physical agencies, have also been found to be connected with each other, and with the more recondite vital influences, as correlative aspects of one central force; so that the unity of creation is reflected in force as well as form. And finally, this principle has seemed to be absolute, for on proceeding onwards it is seen to be impossible to separate form from force, and to regard the one as a mere lifeless image, or the other as a mere 'naked essence.'

"But it may be objected that all these ideas are mere philosophical abstractions, and that this unity of nature is not a practical truth to be realized in the problems of everyday physiology. If there be this oneness of which you speak, it may be asked, how is it that the body is obedient to a law which is totally different to anything we find in inorganic nature? Will it explain the hitherto inexplicable capillary movements of the blood? Will it solve the oft-perplexed, and still unread riddle of muscular action? Will it tell us why the heart continues its mysterious beatings? Will it give the clue to a hundred acts and movements which are distinctive of life, and which we are obliged to refer to an incomprehensible and potent essence which is shut up in every living body? for, except it will help to do these things, the doctrine is of no practical value. An objection like this is just and right, for no one can be expected to receive an opinion which is based merely on transcendental facts and arguments, especially when it is belied (or seems to be) by his own daily experience.

"Let us encounter, then, this objection on the grounds that are here indicated, and inquire whether the *phenomena of vital motion* will not receive light and interpretation from the doctrine they seem to contradict. Remembering the arguments for a common law, let us not seek the explanation in the body alone in which the movements are manifested, but in a wider range of causes. Let us treat unity as reality and not as a fiction, and wait patiently for the result. If we do this, every phenomenon will be found to point to this truth; and this truth, on the other hand, by enlarging our ideas to receive the comprehensiveness of nature, will enable us to advance far towards the explanation of vital motion. If we do this, the movements of blood or other nutrient fluids in vessels independently of any cardiac impulse, the action of muscle, the beating of the heart, and many other mysteries of life, will no longer perplex us, for each will interpret the other; and all will refer to a common law—cosmical—one."

If we understand our author correctly, and we are not so sure that we do, for his language is often anything but clear and explicit, nor are we very certain that he has himself always a very definite conception of the idea he desires to convey in many of the loose and mystical sentences with which the work abounds;—if, however, we have not mistaken his meaning, he refers the vital movements of the living organism to "the several forces of ordinary matter, namely, heat, chemical affinity, electricity, and the rest," and that even what may be termed the vital and peculiar principles, are either mere modifications of these several forces, or else the motors of them.

He urges his readers to "banish the notion that the causes of vital movement *must*, of necessity, be different from those which determine motion in inanimate bodies."

In regard to the development of the primary germs or nuclei of the organic fluids, he remarks, "We may argue that expansion is inevitable under the operation of heat, and thus it is possible to conceive that the enlargement of growth may be no mysterious property, but only the natural result of the operation of heat upon the substance. Even the formation of the cavity, by which the originally solid nucleus is converted into a hollow vesicle, may also be a part of the same process, for under the operation of an expansile force the particles of these minute fabrics will tend outwards from the centre."

"The force connected with the process of respiration must," according to Mr. Radcliffe, "be considered, in great part at least, as physical and mechanical in its character—for it is difficult to attach the idea of vitality to a change so closely allied to combustion and putrefactive disorganization: and the more so, as the effects upon the capillaries may be explained by this means. The dilated condition of the vessels, when the function of respiration is vigorous, may be regarded indeed as the natural consequence of the free extrication of heat, which must take place under these circumstances, and the shrunk and contracted condition when the process flags, as an equally necessary consequence of the diminished supply of the same agent."

In relation to muscular motion, upon which Mr. Radcliffe entertains many very peculiar and heterodox opinions, he remarks, in concluding his examination of the subject:—

"We have reviewed the phenomena of voluntary muscular action in relation to the several correlated aspects of physical force, and from this examination it appears that the muscles are subject to each and all of these agents, as inorganic bodies are subject. Heat, light, electricity, and chemical agency are all correlative of motion, and this latter aspect of force, so far as we may judge, is not different from the motion which is correlative of these forces in inanimate nature."

The following quotation will exhibit the opinion of our author in respect to the nature of nervous influence:—

"The physical mode in which the nervous influence affects the capillary vessels, for there is such a tangible mode of action, may be ascertained without any difficulty. When, for instance, the mind is paralyzed by fear, the skin becomes pale and blanched, in consequence of the shrinking of its vessels; and not only so, but if the bodily frame be fragile and delicate, the deadening influence extends to the heart, and a state of syncope or entire suspension of circulation is the result: when, on the other hand, the frame thrills under the excitement of joy, and the nervous power is exuberant, the countenance becomes radiant, the skin is suffused with blood, and the heart beats with increased vigour. These phenomena afford a twofold illustration of the importance of the nervous principle as an 'agent of life,' and the nature of the agency physically considered.

"As evidenced in the capillary vessels, therefore, the effects of an exuberant or deficient supply of nervous influence are identical with those which attend the communication or withdrawal of that physical agent (heat) with which we have been already occupied—so identical, indeed, that we naturally inquire whether the higher and mystical force does not operate through, and by means of, this ordinary agent. Independently of any unintelligible theories on the subject, it would appear that the peculiar nature of the nervous system, and the relation which this system holds to the rest of the organism, would authorize such a conjecture. The composition is of cells and fibres, constructed upon a common type, and moulded from a common plasm, with the other parts of the body; and structurally, therefore, there is no sufficient reason to suppose speciality of attributes. Nerve and ganglion, also, dissolve away under the ordinary destructive agencies which act upon the body, and change into new chemical compounds, identical in nature and history with the compounds which result from the disintegration of the rest of the organism. Viewing the question, therefore, in connection with genesis, as in the act of nutrition elsewhere, a certain amount of ordinary physical force must attend the formation of nerv-

ous matter: and viewing it in connection with destruction or disintegration, or, in other words, in relation to the respiratory function, the chemical affinity, which is here in active play, is but another name for the same force. A proportionate destruction of tissue is also involved in the development of nervous influence; and in this respect, as in other varieties of force, the nervous influence may be regarded as the exponent of a certain condition of change in matter.

"For these reasons it must be admitted that ordinary physical agencies constitute a part, at least, of nervous power; nay, more, that the degree of the one is commensurate with that of the others. It is impossible, moreover, to conceive the idea of ordinary force being present and inoperative; and it can scarcely be imagined that the nervous power which is superadded to the more commonplace agents should have a different law of action; otherwise, the one might negative the other. Whatever difference of essence, reason and experience argue a community of operation; for, so far as the capillary vessels are concerned, the effects of an insufficient or excessive supply of nervous influence are similar to those which attend equivalent alterations in the intensity of ordinary force. Such, indeed, are the facts already cited in connection with the history of fear and joy as to allow it to be supposed that the nerves act upon the capillaries, not by the sur-addition of any new agency, but by means of that which is already in operation—by that, namely, which is the necessary exponent of the molecular changes in the material part of the nervous substance."

The physiological facts and considerations, remarks Mr. R., are of such a character as to allow us to suppose an intimate relation between the nervous influence, physically considered, and the ordinary force of matter—a relation

"So intimate, indeed, that the former may be regarded as a mere modification of the latter, not essential to the functions of vegetables, or of the lowest tribes of animate existence, but superadded in order to intensify the vitality of higher and more favoured creatures."

In order that our readers may be in possession of our author's entire doctrine, as set forth in the volume before us, of the nature of the nervous influence as an agent in vital movement, it is necessary to add to the preceding quotation the following, from the fifth chapter:—

"In the preceding chapter, it has been found that nervous influence and the other forces of organization agree in their mode of action, and that all these vital and physico-vital agencies co-operate harmoniously with the several varieties of extra-organic force—and hence we may infer, with very sufficient reason, that nervous influence is nothing more than a modification of cosmical force.

"In another work, it has been shown that the nervous system is formed upon the same archetypal plan as the other parts of the body, and even of the body itself, and that the same plan is extended to what are called inanimate bodies; and in this unity of the material framework of things there is another reason for supposing the nervous influence to be a variety of cosmical force. It has been shown, also, in the same work, that all forms of physical and vital force are truly correlative: and hence a final argument in favour of the view that the nervous influence is a variety of cosmical force.

"We are not taught, however, by these considerations to do away with the idea of nervous influence, though we regard it in this point of view, or to ascribe its workings to electricity, or heat, or light, any more than we should confound the existence of light, or heat, or electricity, and say that either of these agents was identical with the others. Correlation, in fact, involves the idea of unity, but it as distinctly retains that of difference. Nor are we to confound nervous influence with mind, for—if it be as we have said—it is clear that it can have no exclusive claim to be considered as identical with this essence.

"The nervous influence, therefore, is to be regarded as one of several modes of cosmical force, which reacts harmoniously with all companion agencies in the determination of vital movement."

The concluding chapter treats of "the action of mind in vital movement." Of this portion of the author's treatise we can furnish our readers no account.

We candidly confess that we have been unable to catch the author's meaning. His language is throughout mystical and indefinite; his arguments, so far as we can understand them, vague and inconclusive: many of his illustrations are irrelevant; while others, as for example his evidence of the conscious state of the mind after death drawn from the imagery of the parable of the rich man and Lazarus, are exquisitely ridiculous.

The work of Mr. Radcliffe, though it unquestionably embodies many important truths, is certainly but ill adapted to advance materially our knowledge of the philosophy of vital motion. D. F. C.

Art. XXIII.—*Observations on the Diseases of the Rectum.* By T. B. Curling, F. R. S., Surgeon to, and Lecturer on Surgery at, the London Hospital, etc. London, 1851.

Mr. Curling is already favourably known to the profession by his "Essay on Tetanus," and by his more recent treatise on the "Diseases of the Testis." The volume of which we have given the title above is a very unpretending one of 123 pages octavo. The author does not profess to present a complete treatise on the diseases of the rectum, but rather "to offer such views of pathology as may lead to judicious practice." After a careful perusal of the book, we cannot see that Mr. Curling has presented therein any important novelty; but we can bear cheerful testimony to the soundness of his pathological views and to the judicious practice which he advocates.

The diseases of the rectum of which he treats are, in special chapters, Irritable Ulcer, Spasm of the Sphincter Muscle, Hemorrhoids, Prolapsus, Polypus, Fistula in Ano, Chronic Ulceration, Stricture, Cancer, Feces impacted in the Rectum, and Anal Tumours and Excrescences. These are preceded by some general observations on the peculiarities which attach to the affections of this part of the body and to the operations for their relief.

In order to form a correct diagnosis of most of these complaints, the use of *a speculum* is essential. Mr. Curling, having found the instruments in common use more or less defective, has had made "a plated speculum of a conical form, so as readily to penetrate the sphincter, with a side opening of sufficient width and carried to the blind extremity of the instrument; and instead also of a movable piece, an ebony plug is substituted, having a plate which fits close into the aperture. The plug admits of being more readily removed and replaced than a slide." A drawing of this instrument accompanies the text.

In describing the *irritable ulcer* of the rectum, Mr. Curling calls attention to its dependence upon, or connection with, the rectal pouches, and shows that it is not unfrequently mistaken for *a fissure* of the mucous membrane, because when it is examined while the rectum is not distended it presents a linear appearance. The symptoms of this troublesome and painful affection are well narrated. The treatment which the author advises, in common with most other surgeons, consists in making a longitudinal incision through the ulcer, including also the sphincter muscle. He says, "the cutting edge of a straight blunt pointed bistoury is to be applied to the centre of the ulcer, which is to be divided by an incision extending to the internal sphincter. The fibres of this muscle are easily felt with the left forefinger, and the depth of the incision regulated accordingly. When the ulcer is situated in the front part of the rectum, it should be divided a little to one side, or the wound will not heal readily; and besides, in the female the division towards the vagina may cause incontinence of feces." When this operation cannot be performed, from objection on the part of the patient or other cause, he advises rest, the employment of mild laxatives, and the local application of sedative and astringent or stimulating ointments. He particularly recommends, if the ulcer be very sensitive, and the spasm of the sphincter considerable, the use of an ointment containing chloroform, as follows: ℞.—Chloroformyl ʒj—ʒij; zinci oxidi ʒss; olei olivæ ʒj; cerat. cetacei ʒiv. M. ft. unguent.

Spasm of the Sphincter Muscle is the subject of the next chapter. It is described as occurring much more frequently in females, particularly those of great nervous excitability, than in the male. The symptoms are similar to those

of the irritable ulcer, though less severe, and the feces are not streaked with blood or pus, as in the other case. The speculum should be employed to certify the diagnosis, the patient having been previously subjected to the anæsthetic influence of chloroform to relax entirely the sphincter. In ordinary cases the treatment which Mr. Curling counsels comprises the local direct application of an ointment containing belladonna, opium, or chloroform to the mucous membrane covering the sphincter muscles, and the employment of iron, with sea-bathing, attention to the condition and functions of the uterus, etc.

The succeeding chapter on Hemorrhoids is very full and instructive. In the cutting operations which may be practiced for their relief, the author very properly points to the liability to troublesome bleeding and the expedients for arresting it. These observations, as well as those which follow, upon Polypus, Prolapsus, Fistula in Ano, and Chronic Ulceration of the Rectum, though excellent in themselves, yet offer nothing which we need dwell upon as peculiar to this treatise.

The chapter on Stricture of the Rectum exhibits very well the author's careful study and wise surgical practice. The causes of stricture are ascribed to chronic inflammation of the mucous and submucous areolar tissues of the rectum, more or less limited in extent, and to contraction consequent upon the healing of ulcers, abrasions, or wounds. Mr. Curling considers the last-mentioned circumstances to be more frequent in their occurrence than is generally supposed. He mentions a case of stricture in a child of five years of age, the result of the perforation of the walls of the rectum and vagina by the pipe of a syringe in the endeavour to administer an enema; the child lived ten months after the reception of the injury. The symptoms and the physical alterations are well portrayed, and the treatment is fully detailed. The treatment of this affection must be chiefly mechanical, by dilatation. But before dilatation is commenced, the author advises the direct application of leeches to the inner surface of the rectum at or near the strictured part; Mr. Curling insists upon the necessity of very gentle and gradual dilatation of the stricture; and he considers it of questionable expediency, to attempt this treatment unless the contraction be within reach of the finger, because, when situated farther up the bowel, "there is no way of ascertaining its character, no guide for the selection of a proper-sized bougie, or for using it so as to dilate the contraction; no means, too, of determining positively whether the disease is simple stricture, or that form of disease—the carcinomatous—which is not likely to be benefited by mechanical interference, and in which the use of instruments is attended with risk of perforation." Previous incisions of the strictured part may be resorted to as adjuncts to the dilatation; and in making these, he prefers two or three cuts in different parts of the contracted ring rather than a single deeper division of the stricture, because the former method is sufficient to accomplish the end in view, and is much less likely to be attended with bleeding than the latter, and moreover it does not permit the access of feces and other irritating matter into the loose areolar tissue about the rectum. It is usually taught that a permanent cure, or even a lasting amendment, is rarely to be expected from dilatation of a stricture of the rectum, in consequence of the difficulty of overcoming the rigidity of the altered tissues, and of so modifying them that they may regain their normal physical and physiological properties. But Mr. Curling is more hopeful in this matter. He says: "More extended experience and longer observation of cases have convinced me that, if the dilating treatment be sufficiently prolonged, the areolar tissue may regain its elasticity and be restored to its healthy state, without retaining the disposition to contract and to indurate."

If it be impossible to overcome the contraction, and an operation for opening the bowel above the stricture be determined upon, Mr. Curling gives the preference to Littré's method, in which the incision is made in the left groin. The circumstances which render this step expedient or necessary, and the mode of ascertaining the probable position of the stricture, are ably presented. In short, this chapter will well reward the reader for its perusal.

Concerning Cancer of the Rectum, the book before us offers nothing particularly worthy of remark. Mr. Curling disapproves of excision in this disease, as practiced by Lisfranc and Dieffenbach, notwithstanding the assurances of

the latter surgeon that he has performed the operation on no less than thirty patients, not one of whom died speedily afterwards. In some of these patients, the disease returned in three months. In one, a very large cancer, with destruction of the external skin and perforation of the bladder, appeared within a month; but the larger proportion of cases continued well many years afterwards. "I cannot but think," says Mr. Curling, "that an operation which subjects the patient afterwards to the misery of incontinency of feces and to great risks from a stoppage in the opening from the contraction of the wound, and, in cases where the cancer is sufficiently developed to leave no doubt of its true nature, to an early return of the disease, ought to be condemned. The chance even of a prolongation of life is not worth acceptance on the terms offered by such an operation." It should be condemned, in general terms, we admit, and not presented for the consideration of a patient excepting in its true colors, with all its painful accompaniments and gloomy prospects. But, after all, the Devil's assertion is still true, "Skin for skin, yea all that a man hath will he give for his life," even for a shadowy possibility of life. And the person who is tortured with a cancer of the rectum may perhaps feel that his cup is already so filled to overflowing with bitterness that a few additional drops could scarcely increase his misery, while the prospect of even temporary relief, dim though it be, may to him be worth the hazard; "the forlorn hope" has sometimes gained an important victory.

Mr. Curling alludes also to the Epithelial Cancer, first, we believe, noticed by Rokitansky, as occurring in the large intestine, especially in the sigmoid flexure and rectum, and makes mention of two cases of this form of disease which have occurred in his own practice. He likewise calls attention to one symptom, which is also found in some cases of stricture with ulceration, and which may mislead the practitioner, viz: pain in the hip, accompanied with lameness to such a degree that the patient limps in walking.

The last two chapters respectively treat of the Impaction of Feces in the Rectum, and Anal Tumours and Excrescences. These occupy only a few pages, but contain many useful suggestions concerning the recognition and treatment of these morbid conditions of the part.

We have no hesitation in commending this little book; we think it must contribute to its author's reputation as a wise and careful surgeon. F. W. S.

ART. XXIV.—*On the Therapeutic Application of Electro-Magnetism in the Treatment of Rheumatic and Paralytic Affections.* By ROBERT FRORIEP, M. D., Public Professor of General Surgery in the University of Berlin, &c. &c. Translated from the German, by RICHARD MOORE LAWRANCE, M. D. London: Henry Renshaw, 1850.

THE above title would lead us to suppose that the affections treated of all belonged to the nosological classes of rheumatism and loss of nervous power; while, in the table of contents, they are all classed as rheumatic. It is doubtful whether this application of terms is correct in some of the cases cited, although, in others, it will apply when restricted to the chronic form of this affection, or perhaps, more properly to the sequelæ of this peculiar form of inflammation. "To find a new, and hitherto unobserved symptom in a complaint of such common occurrence, seems nearly impossible," observes the author. Nevertheless, "a constant and characteristic sign of rheumatic disease," which has never been considered of diagnostic value, but is easily recognized, and bears "exact proportion to the complaint," is to be observed in a peculiar effusion occurring in the cellular tissue, whether subcutaneous or elsewhere; not only as a product of the inflammation, but also as acting mechanically in prolonging the disease. It is to this condition that the electro-magnetic current has been applied, and the cases given are evidence of its value as a local stimulant in relieving the morbid condition. The exact value of the application, and the diagnosis, can only be appreciated by a perusal of the cases themselves; and they afford additional inducements for the use of a much-neglected remedy of considerable power in obstinate chronic affections, especially of a local character accompanied by nervous lesions. R. B.

QUARTERLY SUMMARY

OF THE

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IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Absence of the Pericardial Sac, the Heart lying in the Cavity of the Left Pleura.*—Dr. Baly exhibited to the Pathological Society of London (May 20, 1851) a specimen of this rare malformation.—The subject of it was a man, æt. 32, measuring about five feet six inches in height, and of rather feeble frame: he died the 17th of May, 1851, in Milbank Prison, where he had been confined since the 16th December, 1850. Previous to his committal to Knutsford Gaol, in November 1850, he had followed the calling of a gardener. For nearly three months after his reception at Milbank he remained under the ordinary discipline of the prison, working as a tailor, and taking exercise for an hour daily. When admitted to the Infirmary of the prison, on the 7th March, he complained of cough and diarrhœa, had lost flesh, and was found to be the subject of pulmonary consumption. On the 26th March, symptoms of tubercular peritonitis supervened, and his emaciation became more rapid: he died in a state of extreme exhaustion.

While under observation at Milbank Prison, he presented no appearance indicative of obstructed or disordered circulation, and suffered from no more dyspnœa than usually attends tubercular disease of the lungs. His pulse was always regular, and its number, except during the last few days of his life, not more than 92; and, on the occasion when his chest was examined, soon after his admission to the Infirmary, nothing abnormal was detected in the action and sounds of the heart.

After death, there was found extensive tubercular disease of both lungs, and general cohesion of all the abnormal viscera by firm false membranes containing innumerable tubercles. The right lung, also, was universally adherent to the reflected pleura. The left lung was adherent at its summit, but in the rest of its extent was free; and, when the sternum and cartilages of the ribs were raised, it was at once noticed that the heart, having no separate sac to enclose it, was in close contact with this lung, and had at the same time no abnormal connection with the diaphragm: the heart and left lung lay, in fact, in one serous sac, the membrane forming which was reflected upon the surface of either organ, constituting in the one case the pulmonary pleura, in the other the visceral pericardium. This serous membrane, traced in the horizontal direction, after lining the sternum and the ribs on the left side, covering the posterior and outer surfaces of the lung, and then its inner surface, was reflected at the root of the lung directly upon the left pulmonary veins, and thus reached the base of the heart. After investing this organ, and the vessels arising from and around it, to the normal extent, it passed forward to the sternum, being here separated from a corresponding layer of the right pleura only, by a thick layer of fibrous and cellular tissue. The part of the diaphragm on which the heart and the left lung rested, being covered with the same serous membrane, formed the base of the large sac in which they lay.

Beneath and behind the heart, the serous membrane, where it passed from the base of the heart to the diaphragm, formed a crescentic fold. This fold, thickened by fibrous tissues between its layers, arose on the right side of the ascending aorta, passed downwards to the right of the right auricle, and in front of the inferior vena cava, and, crossing behind the left auricle, terminated on the left pulmonary veins. The depth of this crescentic fold was greatest posteriorly, but did not there exceed three quarters of an inch, except close to the vena cava, where the finger could be passed into a pouch behind it to the depth of an inch and a half. Below, and to the right of this crescentic fold of membrane, which, there can be little doubt, was a rudiment of the pericardial sac, fungi-like processes of brownish and loose fat, like that which commonly occupies the anterior mediastinum, projected into the cavity of the serous sac.

Another peculiarity was, that the left phrenic nerve, entering the thorax in the normal situation, instead of passing down between the heart and left lung, crossed in front of the arch of the aorta to reach the septum, between the two pleural sacs on the right of the heart, when it passed downwards, and, reaching the diaphragm, took a direction towards the left side.

A third fact noticed was that a thin and fragile false membrane, evidently the product of recent inflammation, covered the inner surface of the left lung, and that a similar false membrane invested to some extent the corresponding left side of the heart; a slight adhesion, of small extent, and easily ruptured, also existing between the apex of the heart and the contiguous surface of the lung.

The visceral pericardium, or the serous covering of the heart itself, was generally smooth, thin, and free from white spots. The heart was of normal size, and its valves were healthy.

Cases of congenital absence of the pericardial sac are confessedly very rare. Only two seem to have been recorded as having occurred in this country: one by Dr. Baillie (in the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. i. p. 91); the other by Mr. T. B. Curling (in the 22d vol. of the "Med.-Chir. Trans.," p. 222). An exact account of a third case has been given by Breschet ("Répert. Gén. d'Anatomie," tom. i. p. 212); and references to a few others, less minutely described, and some of them not well characterized, will be found in Otto's "Pathological Anatomy" (transl. by South, p. 254).

In Breschet's case, and in Mr. Curling's, rudiments of a pericardial sac similar to those observed in the present instance existed behind the heart. In Dr. Baillie's case this appears to have been absent. In all three of these cases the left phrenic nerve took the abnormal course towards the right side of the heart, before descending to the diaphragm. And it may not be uninteresting likewise to notice, with reference to one suggested purpose of the pericardium—namely, the protection of the heart from inflammation which might otherwise extend to it from the lung or pleura—that while, in the present case, there were traces of recent inflammation of the serous membranes covering the contiguous surfaces of the heart and lung, in Mr. Curling's case there was a slight adhesion between the apex of the heart and the left lung, with partial thickening of the serous covering of both; and in Breschet's case were two slender adhesions between the heart and the diaphragm (see Mr. Curling's observations on this point, *loc. citat.* p. 229).

It remains only to state that, although the fibrous structure of the pericardial sac was to so great an extent absent, yet a thick fibrous stratum strengthened the serous membrane behind, and to the right side of the base of the heart, and descended to form with the tendinous portion of the diaphragm the same close connection which naturally exists between the fibrous pericardium and the central tendon of that muscle.—*London Medical Gazette*, July 4, 1851.

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2. *On the Persistence of Vital Properties in Limbs in the state of Cadaveric Rigidity.*—M. Brown-Sequard forwarded a note in which he stated that he had recently found that limbs, in the condition usually known as that of post-mortem or cadaveric rigidity, may still be living—*i. e.*, they may cease to be rigid,

may re-acquire muscular irritability and sensibility, and may be moved by the power of the will.*

The following is an abstract of these researches:—

In the body of a guinea-pig which had been in a state of rigidity from ten to twenty minutes, he had divided the aorta and vena cava at the point of bifurcation of those vessels. This done, he had brought the distant portions of these vessels, by means of a quill or glass tube, into communication with the aorta and vena cava of a living animal of the same species. The blood of the living animal has thus been made to circulate in the lower limbs of the dead animal. At the end of about eight minutes, the cadaveric rigidity of the lower limbs had disappeared, and, two or three minutes later, movements have been excited by irritating the limbs or nerves.

It follows from this experiment that the nerves and muscles, having lost their excitability, may regain these properties under the influence of blood, even where the rigidity has lasted a quarter of an hour.

The same result has been obtained by a more easy experiment. Having cut the body of a guinea-pig into two at the level of the lower border of the kidneys, leaving no communication between the two halves, except by the aorta and vena cava, M. Brown-Sequard then tied the aorta immediately below the origin of the renal arteries. The muscular irritability gradually diminished little by little, and gave way to cadaveric rigidity in between fifteen and forty minutes after the ligature of the aorta. After the rigidity had lasted fifteen or twenty minutes, the ligature was relaxed, the circulation was re-established in the posterior segment, and the rigidity was observed to disappear gradually, the muscles and nerves resuming their excitability.

Lastly, in order to ascertain if voluntary movements can be restored to limbs that have been in a state of cadaveric rigidity, M. Brown-Sequard has tied the aorta immediately below the origins of the renal arteries in healthy rabbits. The sensibility of the posterior portions of the body has been lost in six, eight, or ten minutes; two minutes later all voluntary movement has ceased. The irritability has lasted an hour. Rigidity has supervened in from an hour to an hour and twenty minutes after the ligature of the aorta. The rigidity was permitted to continue for twenty minutes, and then the ligature was relaxed. The circulation, and with it the functions of the nerves and muscles, were re-established.

The author concluded with these propositions:—

1. That muscles are not necessarily dead because they exhibit cadaveric rigidity—that, if they are not actually alive, they have the faculty of living.

2. That want of circulation of the blood deprives the muscles and nerves of their functions: the restoration of the circulation restores these.

3. That, notwithstanding the duration of rigidity shall have been as long as twenty minutes, sensibility and voluntary movements may be restored.—*London Medical Gazette*, July 18, 1851.

MATERIA MEDICA AND PHARMACY.

3. *On Antiseptics.* By MM. Augend and Robin.—In a memoir recently transmitted from Constantinople to the *Académie des Sciences*, M. Augend details a great variety of experiments he has been making upon the comparative antiseptic powers of ether and chloroform, which show those of the latter to be pre-eminently superior. To completely prevent the decomposition of a piece of fresh meat, $\frac{1}{200}$th part of chloroform sufficed. Its vapour traverses the densest tissues. It does not coagulate albumen like creasote, and is not decomposed by the muscular fibre. The most obvious action of the chloroform

* It was stated by Dr. J. P. Kay, in 1834 (Treatise on Asphyxia), that limbs which had lost their muscular irritability might reacquire it by the injection of arterial or venous blood.

upon muscular substance and the fleshy pericarp of seeds and fruits is the production of an immediate contraction of the fibre or parenchyma, expelling the aqueous juices to the bottom of the vessel in which the experiment is conducted. M. Augend suggests, among various other applications, that this substance might be found of advantage when it was desired to preserve a corpse for a certain period for the purposes of legal medicine.

M. Robin has conducted numerous series of experiments upon the volatile compounds of carbon and hydrogen, which possess the power of preserving animal substances in spite of the presence of oxygen, as sulphuric ether, chloroform, naphtha, oil of pit-coal, &c. &c. These bodies and their vapours enjoy complete antiseptic power, the blood in fleshy substance being maintained in quite a fresh state. Water impregnated with the vapour of these hydrocarbonates possesses similar power.

Conducted by analogy of chemical composition, he has discovered another order of substances, possessed of a high degree of antiseptic power, viz., the binary compounds of carbon and some other metalloid than hydrogen. He has proved experimentally, that sulphuret of carbon, protochloruret of carbon, azoture of carbon, the Dutch fluid, and hydrocyanic acid, are, like the carburets of hydrogen, powerful preservatives of organic matters. The vapour of these substances, disengaged at the ordinary temperature in closed vessels, preserves such for an indefinite period. For the preservation of the colour of bodies, chloroform, protochloruret of carbon, and oil of pit-coal, are very superior in efficacy to bodies hitherto employed; but they are far from equalling hydrocyanic acid in this respect, the vapour of which absolutely prevents all physical alterations whatever. Nevertheless, in reference to the price of its production, the power and rapidity of its preservative action, no substance presents such great advantages as oil of pit-coal, the rectified allowing much less change of colour than the impure. M. Robin believes it may be advantageously employed for embalming, in the preservation of bodies for dissection or of anatomical preparations, in the tanning of leathers, for the destruction of insects that attack collections of natural history, trees, or seeds, and for the conservation of cereals and seeds in general.—*B. and F. Med. and Chirurg. Rev.*, July 1851, from *Gazette Médicale de Paris*, 1850, Nos. 46 and 48.

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4. *On Local Anæsthetics.*—M. Aran has for some time been actively engaged in following up the experiments of the English and French observers upon local anæsthetics, and the following are the conclusions of his last paper read at the *Académie des Sciences.*

1. Local anæsthetic properties are found in all agents which have been recognized as possessing general anæsthetic ones, and in others of analogous composition, belonging chiefly to the series of chloro-hydrocarbons. 2. These local properties are not in direct proportion to the general ones, but rather to the fixity of the substance. The more volatile the body, the less is its local anæsthetic power, which explains the inferior degree in which sulphuric ether possesses this property as compared with other anæsthetics. 3. A great number of anæsthetics produce irritation of the skin, and chloroform is remarkable in this respect. 4. The agent which is the most convenient to manipulate, the most certain in its action, and the least irritating to the skin, is the *chlorined hydrochloric ether* (*éther hydrochlorique chloré*) recently introduced by M. Mialhe as an advantageous substitute for the "Dutch Liquid," under which name two fluids of very different power are on sale. The *sesquichloride of carbon* may also be so employed; but while the complete effect of the former is obtained at the end of some minutes, the sesquichloride requires at least two hours. 5. In order to obtain satisfactory anæsthetic effects, small quantities of these two substances suffice. From 15 to 30 drops of the ether may be applied directly to the part, or upon moist linen, covering it over to prevent evaporation. Or an ointment may be composed of 4 parts to 20 of lard, or of 4 parts of the sesquichloride to 33 of lard. 6. Anæsthetic agents, and especially the chlorined ether, produce, after an interval of from two and a half to ten minutes, a complete cessation of pain, and after a time, varying from five to fifteen minutes, a cutaneous insensibility that may be easily estimated by means of a needle.

7. The insensibility is not limited to the point at which the application has been made, but extends to the deep-seated parts themselves; and in this way by applying it to the skin we relieve the pain of muscular organs, nerves, articular cavities, and the viscera contained within the thorax and abdomen. Moreover, the anæsthetic effect extends for a variable distance around the point of application, rarely less than to two square inches. 8. The duration of the insensibility varies according to the nature of the agent employed, the quantity applied, and the duration of the contact. It lasts only from one-half to an hour, when the anæsthesia is produced in the physiological condition of parts; but it continues much longer when the application has been made in order to produce insensibility to pain—*analgesia*. 9. In a medical point of view, the number of cases in which local anæsthetic applications may be employed is truly immense. The following proposition is the result of a very multiplied experience: *Whenever there exists an acute pain in any part of the economy, whether such pain itself constitutes the entire malady, or only forms an integrant and principal part of it, we may, without any inconvenience resulting, relieve the patient of it for a period more or less long, by one or several local anæsthetic applications.* The employment of these agents in *rheumatic muscular pains*, and in *neuralgic pains*, has become too common to need additional illustration; but it may be observed that the latter do not become *cured* unless they are very recent. M. Aran is, however, especially desirous of calling attention to their great utility in *articular diseases*. In *subacute* and *chronic articular rheumatism*, they remove pain in a few minutes. They give great relief too in *subacute* and *chronic arthritis;* but here they are especially useful in favouring the application of certain surgical procedures, as *e. g.* compression, extension of contracted joints, &c. It is, however, in *acute articular rheumatism* that he has derived really surprising benefit from these means. The ease obtained restores to the patient temporarily the use of his limbs and his sleep; and the duration of the disease becomes much abridged. This medication may be combined with venesection or any other mode of internal treatment. By the same means he has treated *lead colic*, *nervous*, *uterine*, and *nephritic colics*, and even the pain attendant upon *puerperal peritonitis*, *pleurisy*, and *pericarditis;* and in all, when complete and definitive cessation of pain has not resulted, at least a degree of amelioration and relief that could scarcely have been hoped for has been obtained.—*Brit. and For. Med.-Chirurg. Rev.*, July 1851, from *L'Union Médicale*, 1850, No. 154.

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5. *On the best Mode of preparing the Juice of Dandelion, so that it shall continue in perfect preservation throughout the year.*—The following mode of preparing the juice of dandelion, advised by Mr. Donovan (*Dublin Medical Press*, June 11th, 1851), is worthy the attention of pharmaceutists:—

"The dandelion abounds in a milky juice; it has no smell: its taste when recent is very bitter, the roots more so than the leaves. By drying, the bitterness is destroyed, as happens to many other vegetable substances. I have observed that the juice of the recent roots and herb loses its bitterness by long boiling, and that it even assumes a saline sweetish taste, such as is observable when it is extracted from plants dug during the cold months of the year. The change happens more easily in the juice of the leaves than in that of the roots; yet a decoction of the roots long boiled retains but little of its bitterness. The recent juice of the roots, if evaporated to dryness and restored to its original bulk by the addition of water, will be found by far less bitter than before. The solid extract is therefore a bad preparation, and, as Lewis observes, becomes still worse by being kept. Indeed, the extract of commerce has but little bitterness, and is often so sweet as to suggest a suspicion that it contains a foreign admixture: I have sometimes thought that it was the sweetness of Spanish liquorice. Its colour, which ought to be brown, is generally black.

"The bitterness is due to the presence of a proximate principle said to be crystallizable. When this has been impaired or removed by boiling, a sweetish, saline, and even acidulous taste is discoverable: it naturally belongs to the juice; for, besides the bitter principle, it is known to contain phosphates, sulphates, muriates, and tartaric acid, or a bitartrate, which are the useful ingre-

dients; along with uncrystallizable sugar, gum, inulin, caoutchouc, and some other matters of no medical importance. The bitter principle and salts are the constituent ingredients which claim the attention of the practitioner; and it is to their preservation, by whatever process the juice is prepared, that the apothecary should devote his attention; for, as Dr. A. T. Thomson truly observes, 'much depends on the nature of the preparation.'

"Keeping the foregoing observations in view, the best mode of conservation is obvious. The whole herb as soon as dug is to be washed immediately, well pounded, and the juice extracted by means of the press. Delay in pounding the roots will soon begin to impair their bitterness; and even the expressed juice will speedily begin to change unless put in process of preservation very soon after expression. When the juice has been pressed out, the marc, still containing valuable matter, is to be well mixed with as much water at 200 deg. as will bring the whole to about the consistence of a pulp. After standing two hours, the liquor is to be pressed out, added to the former product, and the mixture is to be very slowly evaporated in a wide earthen vessel, with constant agitation, until it be reduced to one-half. We now have the salts (which in a medical point of view are of great importance) and other ingredients in a much more concentrated form than in the original juice: but the bitter principle has been somewhat impaired in efficacy during the evaporation. Even if this deterioration had not taken place, the juice does not in its natural state contain a sufficient ratio of the bitter principle to act with adequate effect as a tonic when so moderate a bulk of the liquid is administered as is convenient or suitable. On this account a quantity of the roots without leaves, equal to the weight of the whole herb previously employed, must be pounded and expressed. This bitter juice, which is very small in quantity, not in some seasons more than a gallon from 112 pounds, is to be laid aside until the residual marc, from which it has been pressed, has undergone a new process, which is as follows: The mixture of juice obtained from the whole herb and the evaporated infusion of its marc is again to be brought to a boil, and at that temperature is to be infused on the marc of the roots; the temperature will thus be reduced below the injurious degree, but will be still sufficient for extraction of the bitter. When cold, the liquor is to be strongly pressed out, and mixed with one-sixth of its total measure of spirit of wine. The mixture is to be poured into common quart bottles, but they are not to be entirely filled. Appert's process, somewhat modified, must now be resorted to. A large shallow vessel containing cold water is to be placed on a fire: the nearly filled bottles are to be immersed in the water as high as the liquor within: the water is to be slowly brought to about 180 deg.: the bottles are to be withdrawn, and the reserved juice obtained from the roots is to be added to each in equal quantities. These quantities ought to fill the bottles so high in the neck that when the corks are driven in there will be the smallest possible intervening space. The corks being cut off close to the glass, the mouths are to be sealed with hard bottle wax: and the bottles set by, inverted, in a cool place.

"The bitter principle, obtained in the second part of the process, having been scarcely exposed to heat, is as perfect as it existed in the roots. Heat is highly injurious to the active principle of various vegetable substances. The root of arum maculatum is poisonous and so acrid that it will blister the skin; but by boiling or even drying it becomes harmless, and in that state is by some nations used as food. Mezereon bark in its recent state also blisters the skin, but by the moderate heat of drying it loses this power. The seeds of palma Christi are acrimonious and violently cathartic; yet when boiled they are used as an article of diet. The root of the cassava plant, which, like dandelion, yields a milky juice, is in its natural state a violent poison, but when boiled it becomes harmless: the leaves, equally poisonous, are by heat rendered innocuous, and are eaten as a culinary vegetable: tapioca, the food of the invalid, is obtained from the roots. The effect of heat on onions and garlic is known to every one.

"The quantity of spirit of wine here made use of, although it conduces to the preservation of the juice, is by itself insufficient: hence the necessity of Appert's process. Each ounce will contain about one drachm of spirit of wine; more might be disagreeable or inexpedient.

"By the foregoing process, we have dandelion juice in a degree of perfection not very inferior in qualities to that which exists in the plant in its natural state; and in a condition to retain its virtues throughout the year."

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6. *On the Galvanic Cataplasms of Prof. Recamier.*—Dr. Tilt read to the Medical Society of London, May 31, 1851, a communication on this subject.—After some preliminary observations, Dr. Tilt stated that he wished to draw the attention of the Society to the particular mode of employing electricity, in which continued currents are generated by the contact of metals, by which means a large quantity of electricity is obtained at a low tension.

There are many machines constructed on that principle; but they are all ponderous complicated machines, liable to get out of order, and therefore requiring the guidance of some one who well understands their action. The feelings of awe, too, with which the patient generally beholds them, interfere frequently with the effects we desire to obtain. Would not, then, a milder application of the same agency, by permitting its prolonged employment, enable us to do more good than could be effected by the previously employed energetic modes of application? This simple question must have suggested itself to many, and it has suggested itself to a fellow of this Society, who has given great attention to the therapeutical influence of electricity. "I was very sanguine (says Dr. Golding Bird) that the current excited by a simple pair of zinc and silver plates, similar to those we employ to excite the contractions in a frog, would be found of great value in practice." But, to obtain an action, Dr. G. Bird thought it necessary to remove the cuticle from the skin; and then he found that the most oxidizable of the two metals produced sloughing of the skin, or, in other words, the electrical moxa of which he had shown the utility.

Previously to this, Mr. Spencer Wells had ascertained that the removal of the cuticle is not necessary; and that, by applying to the skin, previously moistened by diluted vinegar, two plates, one of silver and the other of zinc, connected by a silver wire, a marked electrical action was obtained; disordered functions of a particular nerve were restored to their normal state, and ulcerated surfaces were rapidly healed.

For many years Professor Recamier had made use of electricity by means of the energetic apparatus usually employed; and it may perhaps be remembered that, a few months ago, he presented to the French Academy of Medicine some remarks on a new mode of supplying electricity, by what he called galvanic cataplasms, consisting of filings of copper and zinc enveloped in cotton wool. Lately he had improved on this rather clumsy contrivance, and he had sent Dr. Tilt the little apparatus which he had now the honour of submitting to the inspection of the Fellows. Each of these cataplasms, or disks, if a scientific term was preferred, is a galvanic pile composed of twelve couples. The couple is formed by a ribbon of zinc and copper, and each couple is separated by a piece of flannel. On the coloured side is cotton wool; on the other, a piece of gutta percha tissue to insulate the apparatus. The only difference between the two disks is, that, in the pink one, the copper stands first, while the zinc comes first in the one covered with blue. The electrical force generated in the apparatus is sent through the copper rings, to which the insulated copper wire can be attached, when the more energetic effect of the two cataplasms is required. In some people, the acid perspiration of the skin is sufficient to increase the intensity of the electric action; but more active effects are produced by wetting the flannels with diluted vinegar, or a weak solution of common salt, as is seen by the action of the apparatus on the electrometer. When one of these cataplasms is tightly bound to the surface on the skin, it gives an unusual sensation of warmth; a pricking sensation is felt, and the skin is made red, when two of the cataplasms are connected by the wire, and applied to the same surface, but at some distance from one another. A stronger effect is produced when one is applied to the organ we wish to influence, and another to the opposite portion of the spine. Such are the modes of application; and it may be worn day and night without inconvenience, though, in ordinary cases, it is only under application at night. In what cases this apparatus has been, or may be expected to be useful, is a question which now

naturally suggests itself. In the hands of Professor Recamier, it once brought on menstruation before the usual time. He therefore intentionally applied it for that purpose, and with success in cases of chlorotic amenorrhœa. He is trying it in such cases of sterility as cannot be accounted for by any disease, but which seems to depend on a defective ovarian action; and, amongst other cases, on an illustrious lady, whose barrenness menaces to extinguish one of the oldest dynasties of Europe, and also in the case of a Russian princess. In this last case, menstruation, which formerly lasted but thirty-six hours, now continues for six days. This is the first effect; but time alone can show whether sterility will be removed in this or the other cases. Dr. Tilt thought it would help to cure some of those tedious cases of chlorosis, where a girl eats heartily, takes plenty of sleep and exercise, has nothing on her mind, and still derives but little benefit from good food and judicious treatment. In hopes that this mild electric action may take effect on the ganglionic nervous system, and give a spur to defective nutrition, he has lately applied one of the disks to the epigastric region of a patient, and the other to the spine. Besides these trials, Professor Recamier has applied these galvanic cataplasms, with marked and rapid success, in the treatment of rheumatic and nervous pains; in one obstinate case of constipation of some years' standing; in a case of asthma; and a patient suffering from angina pectoris was benefited, but not cured. Dr. Massé, and several other medical men in Paris, have found them successful in similar cases, as you will see by perusing the pamphlet Dr. Tilt presented to the Society. In this communication he has merely stated the results said to have been obtained by his venerable teacher; and, if this had not been the last meeting of the Society, he would have delayed drawing the attention of the Society to the subject until he had been able to test its utility by his own observations. He thought, however, the matter sufficiently deserving of consideration; and if, on account of the harmless appearance of the apparatus, the Fellows should be tempted to consider it ineffectual, he would beg to refer them to an authority already quoted, who says: "From what I have seen, I am fully convinced that a feeble current, if kept up for a long time in certain forms of paralysis (care being taken that the positive fluid traverses the limb in the direction of the nerves), would prove the most important mode of applying this remedy with success." It seemed to Dr. Tilt that Professor Recamier's cataplasms would be useful; and, as it was impossible for the Fellows to give them a trial without knowing where to get them, he concluded by informing them that the apparatus might be obtained of Mr. Joseau, of the Haymarket, or of Mr. Bucklee, of 86 New Bond Street, Oxford Street, at the cost of 15*s.*—*London Med. Gaz.*, June 1851.

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

7. *Lungs showing the Arrest of Phthisis in the Third Stage of the Disease.*—Dr. Quain presented to the Pathological Society of London, lungs showing the arrest of phthisis in the third stage of the disease.—A female, in May 1848, when thirteen years of age, was admitted an out-patient at the Brompton Hospital. She was very delicate, had lost flesh, and was suffering from severe cough, shortness of breathing, &c. Her illness had commenced with influenza in the early part of the preceding winter; she had also suffered from an abscess in the right arm. She had been recommended cod-liver oil, but was unable to keep it on her stomach. There was no predisposition to phthisis, and she had not then had hæmoptysis. Since that time, a younger sister has shown unequivocal evidence of phthisis, and an older sister has now become delicate. A note, taken shortly after her admission, states that "there is extensive consolidation at the apex of the left lung, and some deposition at the apex of the right," shown at the one side "by decided dullness, bronchial

breathing, and bronchophony; and, at the other side, by a feeble inspiratory, and a prolonged louder expiratory murmur."

A mixture, in which a drachm dose of cod-liver oil was diffused by means of liquor potassæ in mucilage, and a syrup composed of mucilage, syrup of squills, and a minute dose of morphia, was prescribed. The oil mixture was taken without disturbing the stomach, and she kept her ground. Examined in August, she is stated to have lost four pounds in weight, and crepitation is heard over the left apex; nothing additional at the right apex. Iodine counter-irritation was then applied. In the beginning of September she had profuse hæmoptysis, and subsequently a free puriform expectoration.

An examination, made in the course of this month, when she was able to attend the hospital, showed the existence of a large cavity, where the consolidation and softening had been previously observed. The dose of the oil was subsequently increased, first to a drachm and a half, and then to two drachms, with advantage; for, in the end of the following December, it is recorded that "she gains strength, and coughs but little." She did not attend during this winter, but received her medicine by her mother, and did well. In April 1849, she had an attack of influenza, from which she soon rallied.

In the following June, the record is that "she has not lost ground, though she has not gained in weight since her admission a year ago: there is loud pectoriloquy, cavernous breathing, and gurgling at the left apex, and loud expiratory murmur at the right."

At the end of July the report is, "she looks well; coughs only in the morning."

In August an examination showed "flattening of the chest over the apex of the left lung. The respiration there, though cavernous, is not loud. The pectoriloquy is very distinct. The respiration at the right apex is somewhat puerile." During the winter (1849-50) she continued the remedies.

In February, her appetite had failed, and a mixture of infusion of gentian and bicarbonate of soda was ordered once a day. From this she derived so much benefit that it was continued three times daily, and she was able to take the simple aniseed oil in half-ounce doses.

The following June it is noticed that she has had an attack of nettle-rash, but is still gaining strength, grows tall, and coughs but little, and only in the morning.

This improvement continued; and it is noted that last October she came to the hospital, having been for some time in the country, looking extremely well. Her weight, which at one time had been as low as four stone two pounds, is now four stone nine pounds. She had scarcely any cough; her appetite is good. She is free from suffering of any kind. Examination of the chest shows remarkable flattening and contraction over the apex of the left lung. There is very evident dullness in this situation, and the mobility here is as nine to thirty-two of the opposite side. The respiration is of a sharp whiffing character, with slight crepitus. At the opposite side the respiration is loudly puerile, and percussion shows the right lung extending across the sternum to the left side. At the summit of the left lung posteriorly the respiration is scarcely audible. The dullness here is more decided than in front. The heart is seen and felt to beat distinctly from between the second to the fourth left costal cartilages. The action of the heart in this situation had been a source of some annoyance to her. From this time (October) to the commencement of last March, this improvement continued. Her cough had nearly if not altogether disappeared. She continued the gentian with soda, the cod-liver oil, and the counter-irritant occasionally. At the beginning of March, during the prevalence of the influenza, she was attacked by the gastric, and not the pulmonary, complication of the disease. It commenced with bilious vomiting, followed by diarrhœa, great prostration, and rapid collapse, from which she died on the fourth day.

The body was well proportioned, and showing a very fair amount of fat in the subcutaneous tissue. The right lung was seen to be very voluminous, and extending across nearly as far as the left margin of the sternum. There was no appearance of the left lung in front, but its place was occupied by the heart and pericardium drawn upwards and to the left side, and the walls of the apex

of the chest falling inwards and downwards. The heart was healthy, and rather large for the size of the body. The left lung was found much diminished in size behind it. The lung was adherent more especially at the apex, which was covered posteriorly by a mass of solid fibrinous tissue, corresponding to the seat of dullness and feeble respiration previously mentioned. Very nearly the whole of what had been the upper lobe of this lung was occupied by the remains of a cavity irregularly divided into two, by one of the bands so frequently seen in phthisical cavities. The entire cavity was about the size of a large walnut. It contained about half a drachm of a thin whey-like fluid, with which were mixed particles of whitish coagula. The walls were formed by condensed pulmonary tissue, varying in thickness from less than a line to a quarter of an inch, and in some points puckered and contracted. The air-cells and small bronchi were distinctly visible, under the microscope, in this tissue, which was separated from the contents of the cavity by a wall or membrane composed of firm filamentous tissue and granular cells. This membrane had much the appearance of a mucous membrane, but it was not examined sufficiently soon after death to be able to trace the presence of an epithelium. The cavity communicated with the left bronchus by an orifice which would admit a crow-quill, situated midway between the top and bottom of the cavity. There was a good deal of healthy respiratory tissue in the lower lobe of this lung; but there were scattered through its substance six or seven points of condensation, such as are hereafter described existing in the right lung. The right lung was large, and the air-cells partook of its character. In water it displaced a quantity which measured twenty-three ounces, whilst the left displaced but nine ounces. The apex was remarkably puckered; and on cutting through this puckering the tissue of the lung was found to be traversed by short fibrous bands, between which appeared points of softish pale-yellow tubercle. A little lower down in the centre of the upper lobe a mass of soft tubercle, about the size of a small hazelnut, was found. It was enclosed in a cyst, and consisted almost entirely of fatty granules and cells containing similar particles. In the other lobes, several consolidated points were found—the largest smaller than last described, and none so fully formed. They appeared in some places to consist merely of condensed tissue; in two there was an appearance of yellow, firm tubercle; and in two, small calcareous particles. In neither lung was there the least appearance of recent tuberculous deposit. The other organs were healthy; the kidneys were large. There was no disease of the intestine beyond congestion, which in some parts was very distinct.

This case affords an additional illustration of the great extent to which the ravages of pulmonary phthisis may proceed, and its progress yet be stayed. Such cases were, happily, now met with more often since cod-liver had come into use: still Dr. Quain did not know of any case which afforded, by the evidence of post-mortem examination, so striking a result. This case was also interesting from its throwing light on the nature of the puckerings so constantly seen. Some observers were disposed to regard them as being independent of tuberculous deposit. In this case it was evident that they were due to the previous existence of this deposit, which, in fact, had been recognized there during life, and traced after death.—*London Med. Gazette*, June 1851.

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8. *A Statistical Report upon Disease of the Heart, derived from a consideration of all the Cases admitted into St. George's Hospital during the last two years and a half.* By Dr. Barclay. ("Proceedings" of the Royal Med. Chirurg. Society, June 24, 1851.)—Rheumatism is first considered as one of its causes. Divided into two nearly equal classes—those really inflammatory or acute, and those less so, or sub-acute—the former class is found to contain sixty-seven cases with cardiac lesion, sixty-four without, and twenty-one doubtful. Endocardial murmur is found not to be certain evidence of disease, even in the most acute cases. Females are slightly more liable to acute rheumatism than males, but less liable to a recurrence of the disease. Females are more decidedly liable in a larger proportion to cardiac complication, and this is especially proved by the existence of friction-sound in the proportion of three females to two males. Cardiac complication exists eighteen or twenty per cent.

more frequently in subsequent attacks than in primary ones. It is in the proportion of three to two of all the cases up to the age of twenty-five, and falls very rapidly after that age. The cases of sub-acute and chronic rheumatism furnish no examples of recent inflammation of the heart, but a considerable number of cases of old disease. So far as could be ascertained, these were almost all traceable to previous acute attacks, and were only about one-third of the cases which had previously suffered from acute rheumatism. The post-mortem appearances of recent inflammation are found associated with acute rheumatism, with disease of the kidney, with inflammation of the peritoneum and pleura, and with old disease of the heart, especially when hypertrophy existed, and with turbulent action during life. The cases of old disease of the heart are divided into sixty-one rheumatic, seventy non-rheumatic, and sixty-nine doubtful. They show a very considerable preponderance of males, especially among fatal cases. Up to the age of twenty, almost the whole, and even as far as thirty, more than half the cases are associated with acute rheumatism. In the next twenty years, the non-rheumatic almost double the rheumatic cases, and after fifty, there are scarcely any derivable from rheumatism at all. The duration of rheumatic cases, dating from the first attack of acute rheumatism to death, is generally much longer for females than for males, varying in the latter from four to six years; in the former, from twelve to sixteen years. Four out of seven fatal cases of acute rheumatism, and twelve out of eighteen of older standing, are associated with pericarditis, which is always severe and extensive; but universal adhesion is neither the constant nor even the common result of rheumatic pericarditis, and it exists in cases where the previous existence of rheumatism is altogether denied. In valvular disease, there are eighteen rheumatic cases, twenty-three non-rheumatic, and twelve doubtful. The recent cases are all examples of inflammation of the mitral valve. When old and recent disease exist together, and when old disease is seen in different stages, the mitral valve generally appears to have been first attacked, and the aortic secondarily; and hence the preponderance of double valvular lesion in rheumatic cases seems to be due to renewed inflammations at distinct periods. Inflammatory thickening occurs also in several cases in which there had been no rheumatism. Disease of the kidney is associated with two cases of simple recent fibrinous deposit on the valves, and three of recent pericarditis, in which no other cause was known to have been in operation. It seems questionable how far this can be taken as a cause of great thickening of the valves, or of an adherent pericardium. Disease of each set of valves seems to produce, in nearly equal proportions, hypertrophy and dilatation, but aortic regurgitation especially the latter; atheroma of the aorta, more commonly hypertrophy; adhesion of the pericardium, chiefly dilatation. Disease of the kidney is associated with an immense majority of the cases of hypertrophy, and similarly of all the cases of disease of the kidney; more than a third presented on post-mortem examination more or less of hypertrophy of the heart. A table is appended, in which the post-mortem appearances are arranged, of all the cases in which clinical history threw any light on the disease of the heart found after death.—*Lancet*, July 12, 1851.

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9. *On Anasarca in Disease of the Heart.* By M. Chomel.—The progress of infiltration is ordinarily slow and progressive in affections of the heart; but, nevertheless, nothing is more common than to meet with individuals among the working-classes, who, while presenting the appearance of health, and without having manifested any sign of disease, are seized with anasarca, the physical and material signs of cardiac alteration not being present, or only, at all events, to a very slight degree. This is because there are causes prevailing in this class of society—such as excess of labour, fatigue, watchings, misery, drinking—which, in a measure, precipitate the course of the disease. These causes come in addition to the natural influence of the disease; and the anasarca appears at a period when without these it would not have manifested itself. So, when these causes are removed, and the patient is kept at rest, and sheltered from the unfortunate conditions that have given rise to so serious a complication, the œdema diminishes daily, and the patient soon leaves the hospital be-

lieving himself cured. New exposure to excesses, fatigue, or misery, reproduce the anasarca, which may be again dispersed, and that for several times; but after a certain number of such attacks, it in the end becomes permanent.

Frequently the appearance of an acute anasarca throws a ray of light on obscure and embarrassing cases, indicating in the great majority of cases an acute disease of the heart. Doubtful endocarditis and pericarditis are often thus revealed to the observer by general œdema. M. Chomel thus considers that in the case of anasarca coming on, when we can discover neither change in the blood nor albumen in the urine, we are authorized in admitting the existence of disease of the heart, or large vessels, even when all material signs of this affection are completely absent.—*British and Foreign Medico-Chirurgical Review*, July 1851, from *L'Union Médicale*, 1851, No. 26.

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10. *Cases in which there was unusual Difficulty in the Diagnosis of Pleuritic Effusions.* By T. A. Barker, M. D. ("Proceedings" of Royal Med. Chirurg. Society, May 27, 1851.)—The first case related by the author was one in which there was extensive emphysema of the left lung, which had encroached greatly on the right side of the chest, pushing the heart and mediastinum beyond the mesial line. The right lung, which was closely adherent to the costal pleura, was reduced to about a fourth of its usual size, was exsanguine, and contained no air, resembling a lung compressed by effusion in the pleura. In consequence of these changes, no respiration could be heard in the right lung during life: the right side of the chest was universally dull on percussion, and the patient could only lie on the right side or sit erect. Along with these symptoms were others closely resembling those which usually attend hydrothorax; and the dyspnœa and symptoms of approaching apnœa being very urgent, the author thought himself justified in having a very fine trocar introduced into the chest, in order to ascertain positively whether there was fluid. No inconvenience resulted from the operation, and the symptoms were soon afterwards explained by the discovery, on post-mortem examination, of the very unusual state of parts above described.

The next case was one in which, without any of the general symptoms of pleuritic effusion, it was discovered, by auscultation, &c., that there was no respiration going on in the posterior third of the left lung. In four days the person died. The lungs were healthy; but there was extensive effusion, confined to the back part of the chest by a very narrow line of adhesion, extending from the upper and back part of the chest to the diaphragm, half way between the ribs and the sternum. The author referred to three other cases which he had seen, in which the pleuritic effusion had been limited by adhesions in the same position and precisely similar; only one of these had been seen by him during life, and in that the symptoms closely resembled those in the case last related. Two other cases were shortly alluded to, in which there was emphysema to a considerable extent; but respiratory sounds could be heard in every part of the affected sides, in consequence of the lung being kept partially in contact with the ribs by mucous adhesions, forming several separate cavities in which the purulent matter was contained.—*Lond. Med. Gaz.*, June 1851.

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11. *Treatment of Erysipelas by the Muriated Tincture of Iron.*—Dr. G. Hamilton Bell, in a paper read before the Medico-Chirurgical Society of Edinburgh (April 10th, 1851), and published in the *Monthly Journal of Med. Sci.* for June last, extols the efficacy of the muriated tincture of iron, in the treatment of erysipelas, a mode of treatment which he has resorted to, he says, in every case of the disease he has attended for upwards of a quarter of a century, without having in a single instance failed of success.

The first object is, he says, to have the bowels freely acted on, and then he administers the tincture in the following mode: "If the erysipelas be mild, fifteen drops of the muriated tincture of iron are administered in water every two hours until the disease is completely removed. When the attack threatens to be more severe, the dose of the tincture is increased to twenty-five drops every two hours, and persevered in night and day, however high the fever and delirium. The

only local applications I ever find necessary, are hair powder and cotton wadding. While I depend for the removal of the disease on the chalybeate, it is necessary that the bowels should be attended to throughout the treatment."

Several cases illustrative of the value of this mode of treatment are related.

Dr. C. Bell also addresses his testimony in favour of this treatment, and states that he has "prescribed it (the muriated tincture of iron) both in the idiopathic form of the disease, and in that consequent on external injury, with the most satisfactory results; and I have found it equally efficacious at every period of life, from early infancy to advanced age. It not only removes erysipelas in a remarkably short time without weakening the patient, but it effects such an improvement in the system, that those who are subject to periodical attacks of the disease are rendered much less liable to have a return.

"The beneficial effects of this medicine are so immediate and invariable in the common forms of erysipelas, that I feel convinced, were it given with boldness and perseverance in puerperal fever, which is now generally admitted to be analogous in its nature, and frequently accompanied by erysipelatous inflammation on the surface of the body, many valuable lives might be preserved.

"In pursuing the chalybeate treatment of erysipelas, I consider it of much importance to bring the system rapidly under its influence, in order to effect a speedy removal of the disease. I have therefore been in the habit recently of giving much larger doses of the tincture than I ventured to prescribe at first. It is a remarkable circumstance in the exhibition of this valuable remedy in the erysipelatous diathesis, that although given in much larger and more frequently-repeated doses than have been recommended in our dispensatories, it never produces headache, and when this symptom is present it quickly relieves it; at the same time, it reduces and regulates the pulse: thus showing that in this state of the system, it has a soothing and sedative, as well as alterative effect."

He particularly calls attention to the advantage of this mode of treatment in infantile erysipelas, and also in that form dependent upon external injury.

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12. *Cod-Liver Oil in Gaol Cachexia.* By Caleb Rose, Esq.—From the extensive trial which has been given to cod-liver oil, the profession is now able to form an opinion of the value of this medicine in certain diseases; and the author believes he is right in stating that those who have had large experience in the use of the oil esteem it a medicine of great utility. The diseases in which cod-liver oil has been found most beneficial are those which are termed scrofulous; and the author has found it so useful in a particular form of scrofula, that he has thought it might not be uninteresting to record the result of his experience in this form of disease. The form of scrofula to which he alludes is that to which prisoners are liable who have been for some considerable time confined in prison. Dr. Baly, in a very interesting article in the "Medico-Chirurgical Transactions," has shown that amongst prisoners who undergo a long term of imprisonment there is a high rate of mortality from tubercular diseases. In the last seven years the author has seen several cases of this scrofulous cachexia amongst the prisoners confined in the prison at Swaffham; and it appears to him to be different from the ordinary forms of scrofula met with in general practice. The men who have been the subjects of it, have not been robust at the time of their entrance into the prison, but they were not at this time apparently suffering from scrofula or any other disease. They had all been in prison six months before symptoms of scrofula appeared; most of them eight months; and their term of imprisonment was twelve months, and in one case, the author believes, two years. The symptoms of the disease are these: The man is observed to look paler and thinner than usual; he is very much depressed in spirits; has no appetite for his food; sleeps badly at night, and at that time, also, frequently has profuse perspirations; there is slight diarrhœa; the pulse is quick, irritable, and feeble. With those symptoms, the author has in every case found some of the cervical glands more or less enlarged, and, moreover, they continue to enlarge very rapidly. In the first five years, three of the men died in prison, two of very rapid phthisis (one of them of sudden and large hæmoptysis), the third of tubercular peri-

tonitis. The others who were seriously affected with this scrofula were discharged from prison before their proper time, and, I have since learned, recovered speedily after their liberation. Those who suffered in a minor degree were carried on to the end of their term of imprisonment by care and indulgence. Rather more than two years since we began to treat these cases with cod-liver oil, and with the best effects. As soon as a prisoner begins to show that marked deterioration of general health which is so likely to end in the development of scrofula, he is put upon the oil; and in every case the author has seen the man gain colour and flesh, and become restored to health. The two men who first took the oil had the cervical glands much enlarged (in one of them suppurating), and as they had still to remain some months longer in prison, it was thought that they must have been discharged before the end of their term; however, after taking the oil a month they improved steadily, and eventually left the prison at their proper time, in as good health as when they entered it. Since these two cases there have not been any so bad, as the oil has been administered in good time to those men who have shown that deterioration of health which appears to be the commencement of scrofula: and certainly their health has apparently been entirely restored by this valuable medicine.—*Ranking's Abstract*, vol. xiii., from *Prov. Med. and Surg. Journ.* Nov. 27, 1850.

[Dr. Given has also extensively employed the cod-liver oil in the Eastern State (Pennsylvania) Penitentiary, for gaol cachexia, and, he informs us, with great advantage. We hope to be able to present the results of his experience in the next number of this Journal.]

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13. *Kousso.*—Dr. Crisp mentioned, at the recent anniversary meeting of the Prov. Med. and Surg. Association, four cases of tænia solium, in which he had used the kousso. Two were cured, and the other two were failures. He questioned whether it were worth more than turpentine, except that it was milder in its action.—*Med. Times*, Aug. 16.

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14. *Case of Epilepsy treated by Tracheotomy.* By W. H. Cane, Esq. ("Proceedings" of Royal Med. Chirurg. Soc., June 24).—Dr. Marshall Hall had suggested on several occasions, and especially in a conversation with Mr. Cane, that as the attack of epileptic or other *convulsion* implied closure of the larynx, with expiratory efforts, the attack of convulsive epilepsy would be prevented by tracheotomy. Mr. Cane was summoned, on Feb. 1, 1851, to the case of a boatman, aged twenty-four, who had become subject to violent fits of epilepsy, one of which had just occurred in so extreme a form as to leave him in a state of deep apoplectic coma and asphyxia, inspiration being performed only "by seldom and short catches, whilst the veins of the head and neck were everywhere visible and greatly distended." This state had continued nineteen hours. "Feeling convinced," Mr. Cane observes, "that the patient must shortly expire, and that the root of the evil was in the closure of the larynx, I at once proceeded to open the trachea, a matter of no small difficulty, on account of the twisted state of the neck, the engorged state of the vessels, and the constant action of the muscles. The operation of tracheotomy was performed, and the tracheal tube is kept in the trachea to the present time. The relief to the patient was immediate; the air passed into the lungs, the state of spasm subsided, with the turgid condition of the head and neck, and the patient soon recovered his sensibility. This was not the only gratifying result; although the poor man had experienced his epileptic seizures in increasing violence during seven or eight years, and recently thrice a week, he had, on April 1st, during two months, had no return of them. More recent accounts of the patient, who is now in Staffordshire, confirm the former report; the tube is still kept in the trachea, and the epileptic seizures have not recurred.—*Lancet*, July 12, 1851.

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15. *On the Causes, Consequences, and Treatment of Inflammation of the Veins.*—Henry Lee, Esq., in an interesting paper in the *London Journal of Medicine* (March and July 1850), endeavours to establish the following points in reference to the pathology and treatment of inflammation of the veins:—

1st. That inflammation, both of the veins and of the capillary vessels, usually depends upon irritation, communicated to them through their contents.

2dly. That pus is capable of producing such irritation when detained in contact with the lining membrane of the veins; but that it may be conveyed along their channels, without leaving any trace of its passage.

3dly. That pus, under ordinary circumstances, cannot circulate in living vessels, in consequence of its power of determining the coagulation of the first portions of the blood with which it is brought in contact.

4thly. That when pus is carried along a vein, it is in consequence either of the disturbance of the coagulum which has first detained it, or of the blood having in some measure lost its natural power of coagulation.

5thly. That when, in consequence of either of these conditions, pus does find its way into the circulation, it may nevertheless determine the coagulation of the blood in its passage, either in a different part of the same vessel, or in distant parts of the system.

6thly. That when the coagulation occurs in a distant part of the body, it is usually observed in capillary vessels.

7thly. That when it occurs in a large vein, it may affect the circulation through the whole of the vessels which supply it; and that if, for example, a coagulum be formed in, or extend to, the common iliac vein, the obstruction produced may give rise to all the symptoms of *phlegmasia dolens*.

8thly. That, under any of the circumstances above mentioned, bleeding and the use of mercurial medicines are of at least doubtful efficacy.

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16. *Effects of Molluscous Tumours when developed in the External Auditory Meatus.*—Mr. Toynbee exhibited to the Pathological Society of London (May 20, 1851) some specimens illustrative of this.—Although the existence of molluscum contagiosum in the external meatus has not been recognized by any former writers on diseases of the ear, it is far from being a rare disease, especially in elderly persons. It is found in all parts of the tube, but the situation where it is most common is the superior and posterior part, near to the attachment of the membrana tympani. The preparations laid before the Society show the effects of these molluscous tumours—1st, on the meatus; 2dly, on the tympanic cavity.

1st. *The meatus.*—When situated at the posterior part of the meatus, these tumours, if their progress be unchecked, cause absorption of the layer of bone separating the meatus from the mastoid cells, and they frequently extend into the mastoid cells, of which they occupy a considerable space. When a tumour is placed in the floor of the meatus near to the membrana tympani, the bone between the tube and the jugular vein is sometimes absorbed, and the vein is separated from the meatus by only a delicate membrane.

2d. *The tympanic cavity.*—It has already been stated that the molluscous tumours are frequently developed at the superior and posterior part of the meatus, near to the membrana tympani. As they increase in size, they cause absorption of the superior part of the membrana tympani, and of the adjacent bone, thus producing a large opening into the tympanic cavity. Through this opening the tumour extends, and, increasing to the size of a small hazelnut, it not only occupies the greater part of the tympanum, but it sometimes extends upwards, destroys the layer of bone separating the tympanic cavity from that of the cerebrum, and comes into contact with the dura mater, which also partakes of the disease. In one case the tumour had caused disease in the lower wall of the tympanum, and the jugular vein was laid bare. The layer of bone between the carotid artery and tympanum was also carious.

When the tumours have increased to such a size as to cause irritation to the dermoid layer of the meatus, catarrhal inflammation ensues, attended by considerable pain; such cases have no doubt hitherto been comprehended under the general term otorrhœa.—*London Med. Gaz.*, June 1851.

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17. *Case in which the Liver contained Air.*—M. Piorry recently met with a very singular appearance in the body of a man, æt. 21, who died at La Charité

of very confluent variola, the colon, after death, presenting numerous ulcerations, which only affected the mucous membrane. The circumstance that attracted attention was the fact of the liver, on percussion, transmitting a sound, as if it contained air. Neither it nor any other part of the body had undergone putrefaction. On cutting into the liver, it was found to have lost its granular appearance. On pressure, it crepitated like lung, and swam in water; if squeezed, bubbles escaped from it, and it then sank. In other respects it appeared healthy. The *vena cava inferior* also contained air; but the *vena portæ* was not examined. There were no signs of emphysema, but some gas was observed near the pancreas and kidney. In consequence of the numerous intestinal ulcerations, which, from the hemorrhages that occurred during life, may be supposed to have opened some vessels, gases might possibly have penetrated into the ramuscules of the vena portæ, and thus arrived at the liver. However this may be, had the organ been percussed during life, it must have been mistaken for lung; and when cut into after death, a superficial examination might easily have led to the same error.—*British and Foreign Medico-Chirurgical Review*, July, from *Gaz. des Hôpitaux*, 1851, No. 24.

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18. *On a New Epidemic Exanthem.*—Dr. Laycock has published, in the *Medical Times* for March 8, 1851, a clinical lecture on an affection which he considers as a *new epidemic exanthem*. About a year and a half since, he first observed the disease among the patients and domestics of a large private asylum; and even the children of the matron suffered. The robust were affected as well as the feeble. Concurrently with the boils, there was sometimes an ecthymatous affection of the skin. The disease was not fatal in any case. Dr. Laycock believes it to be epidemic over a great part of England.

The disease is mainly characterized by a succession of boils on various parts of the body, of various sizes, from a bean to a walnut. First, there is a small hard pimple, with, perhaps, a vesicle or circlet of vesicles on the top. This itches; the top is scratched off; when it is found that there is a small tumour in or below the derma, which becomes larger, inflamed, very painful, and at last suppurates, with an erysipelatous blush about it, and in bad cases with phlyctænæ. A number of these occur in succession on various parts of the body, but principally on the forearm, leg, and nates. Occasionally there is a vesicle only, which quickly puts on the appearance of ecthyma; and in one case at the York Dispensary (in a child), there was just one large livid-looking phlyctæna, as large as a crown piece, very like gangrene. Sometimes there is a solitary boil, large, angry-looking, and mischievous as a carbuncle. An aged lady, who came under his notice, had one of these on the mons veneris; and sometimes even the minor specimens are not to be distinguished from carbuncles. Very often, after they have sloughed and healed, they leave an indurated condition of the skin and subcutaneous cellular tissue.

The eruption, whatever form it may assume, has a definite period of duration, and continues from two to six weeks. The furuncular form is not always more chronic than the ecthymatous, but is so for the most part; the exceptions being those cases in which the patient is cachectic. It is not, however, dependent at all upon a cachectic condition, for it occurs in robust men and in very healthy children. Nevertheless, the cachectic suffer more from the disease, and perhaps they suffer also in greater numbers. In some instances we may clearly trace the localization of the boils to some local cause; for example, a crop will break out round a blister, or round another boil, if it be poulticed much, or round a burn. In one case, they occurred on the neck, thorax, and upper arm of a young woman who had irritated her throat by the inunction of the iodide of potassium ointment; and in another, chronic psoriasis seemed to have been the exciting cause. Dr. Laycock suspects that any local irritation of the skin is sufficient to induce the disease in an individual within the sphere of the epidemic.

Dr. Laycock believes that this eruptive disease occurs under the following forms: 1. There may be a solitary boil, presenting, for instance, a phlyctenoid character, with inflammation of an erysipelatous character extending down the arm to the wrist, and upwards towards the shoulder. 2. A solitary phlyc-

tæna, or several. 3. Several boils, varying in size and character up to carbuncles, without any other cutaneous disease. 4. Boils, with ecthyma, eczema, or impetigo: but much more frequently with ecthyma. 5. The boils differ, in leaving or not leaving behind them an induration of the skin and subcutaneous tissue.

Dr. Laycock is of opinion that this epidemic is essentially a blood-disease, caused by some specific poison. What that poison may be, and what its origin, are altogether uncertain; it may be from the atmosphere, or from our food, as American flour, for example, or from the flesh of tainted cattle, or may be generated within the body by atmospheric peculiarities; or it may be a contagious *materies*, originating in the first instance with brutes, and then transmitted from one individual to another. If it be the latter, as seems most probable, then he thinks it is *strictly* contagious, like glanders or syphilis, and not infectious also.

During several months past, there has been an epizootic prevalent in Yorkshire, affecting horses and cattle. In the latter, the mouth and throat are so inflamed that the animal cannot eat, or the hoofs come off. The same disease is prevalent in Shropshire. It seems to correspond with the epizootic *Maulweh* and *Klauenseuche* of the Germans, and is accompanied with an aphthous eruption. According to Levitzky, persons attending on cattle attacked with this disease, or something similar, which he terms, "angina catarrhalis," were affected with an inflammatory *rheumatic* fever (not with an angina catarrhalis), accompanied with a pustular eruption, and abscesses and ulceration of the lower extremities.

In treating this furuncular disease, little more is required, in ordinary cases, than to let it run its course, which is completed in three or four weeks. An occasional purgative and warm bath will be useful in allaying inflammatory action, and perhaps diminishing the number of boils. Two grains of calomel with rhubarb, colocynth, or scammony, twice a week, will be useful: in the more severe cases, the mineral acids and vegetable bitters must be added, and a good diet; the liquor of the amorphous sulphate of quinine in full doses, with dilute nitric acid, has been found useful. In all cases, however, purgatives and the warm bath are beneficial. Cataplasms, fomentations, etc., are not of much service. So soon as suppuration is established, a free incision should be made into the boil, and then the water-dressing applied: care should be taken that the pus do not flow on the adjoining skin, and (as in erysipelas) that the sponges, etc., be not used by other patients or persons.

The editor of the *Lond. Journ. Med.* states that boils have been unusually prevalent this year in London and the neighbourhood, and in Philadelphia we have observed a very remarkable number of cases of this affection, as also of carbuncles and of whitlows.

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19. *On Eclampsia Nutans.*—Dr. Faber relates two cases of this curious affection. The *first* occurred in a girl, æt. 3, who, though pale and weakly, had not suffered from any decided disease until three months before, when she complained of headache and sleepiness, began to squint somewhat, and sometimes to nod her head towards the left side. This nodding action was at first continued only for a few minutes three times a day, during which the head was making constant salutation-movements. After a while the attacks increased in frequency, and were fearfully violent. The child was much disposed to sleep; and became on waking convulsed in the extremities, this passing on to complete epilepsy. She was backward in mental development, and had an idiotic expression of countenance.

The *second* occurred in a boy, æt. 6, who showed good capabilities for instruction up to the commencement of his sixth year, when he fell into the water. He remained in bed several days after in a drowsy state, and was never again so lively and quick. After a while, he was observed to nod his head for two or three minutes, and this several times in the course of the day, the motions being sometimes so rapid that eighty could be counted in a minute. They commenced at first slowly, like real salutations, but gradually increased in quickness, when the child would fall back in a passion. During the time they con-

tinued, his face was distorted, and great fatigue was induced. He was aware when the attacks were coming on, and his consciousness continued during their prevalence. He was pale and feeble, and had acquired a peculiar, stupid look.

The reporter inquires whether this is a partial chorea or a peculiar form of spasm, and whether it is dependent upon morbid conditions of the brain or spinal-marrow. The most careful examination of his two cases did not enable him to decide. No pain or tenderness about the head or spine was discoverable, and nothing abnormal in the general condition. Various applications and medicinal substances were resorted to, with but very little success—iron seeming the most useful among them.—*British and Foreign Medico-Chirurgical Review*, July 1851, from *Schmidt's Jahrb.*, vol. lxvii.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

20. *On the Application of Anæsthetic Remedies to Surgical Purposes.*—The *Dublin Medical Press* (March 12th, 1851) contains a very interesting paper on this subject, communicated to the Surgical Society of Ireland by Dr. Fleming, which we conceive to be of so much practical importance, that we shall give a very full analysis of it.

In considering the selection of cases for anæsthetic agency, Dr. F. remarks, "The state of the system at large must be borne in mind, and also the special character and locality of the injury or disease which it may be the object of the surgeon to remedy. Those two circumstances should form most important elements in his decision, as upon the accuracy of that decision depends the successful or satisfactory application of the agent—nay more, perhaps the life of his patient. Due importance should be always attached to them—careful examination should be made as to the presence of any structural lesion of any vital organ—habits of previous life should be inquired into—peculiarities of constitution should be ascertained—and functional derangements, not fairly attributed to the peculiar nature of the case, should be carefully investigated. Every day's observation proves the importance of those particulars as regards the general condition of the patient; and it will be seen, in the sequel, how requisite it is equally to bear in mind the local features of the injury or disease present. Yet, it is a pleasing reflection that occasional deviations from such stringent rules may be made without injurious consequences, even in reference to the general signs of disease, as would appear from the following remarkable instances:—

"In September, 1848, a young man, aged about 20, reduced to the most extreme state of emaciation and exhaustion, and in the advanced stage of phthisis, accompanied with cavities in the upper part of each lung, entreated Mr. Cusack to amputate his thigh under the most distressing and uncontrollable sufferings. The knee-joint, for a lengthened period the seat of chronic strumous arthritis, now presented its cavity exposed from the sloughing of the whole of its anterior coverings, and one enormous sheet of ulcerating surface was to be seen, with the carious ends of the bones projecting through it. The torture of the poor fellow was frightful to witness. The slightest motion of the limb, the slightest touch of the surface, produced the most agonizing cries. His wish was ultimately acceded to: he was removed from his ward to the operation theatre under the anæsthetic influence, and under it a painless amputation was performed without any injurious results, either immediate or subsequent, the pulmonary symptoms not having been ostensibly, in the slightest degree, affected by it.

"Another case is worth noting, in which benefit was derived from its partial adoption, although a very important organ was implicated.

"In May, 1849, a young man, between twenty and thirty years of age, of athletic frame, and in apparent good health, betrayed maniacal symptoms of a

nature to demand personal restraint. It was indispensable to put on a straitwaistcoat, and any attempt on the part of the attendants to do so, no matter how devised, had failed, and always produced most violent paroxysms of rage, during which every mischief was threatened. It occurred to me that, under anæsthetic influence, the object might be accomplished. I induced him to lie down, and proceeded in the ordinary way to administer the agent. He became tranquil and comparatively composed and manageable, though he continued to speak equally wildly and incoherently. Watching an opportunity, I now desired the very same attendants to proceed to the ordinary mode of personal restraint. He submitted to the details without the slightest opposition or remark, and did not subsequently express any annoyance from it, the symptoms of his disease being apparently uninfluenced in other respects.

"A third case may be added, where, although the age of the individual was far advanced, and deranged cardiac action existed, yet complete anæsthesia was superinduced and kept up for a lengthened period with impunity.

"A man, having all the external characteristics of perfect health for his advanced period of life, verging on eighty years, applied to me with symptoms of calculus in the bladder. I sounded him, and finding a stone, procured his admission into Steevens' Hospital. It was finally decided that the case was one favourable for lithotomy, and the operation was performed by Mr. Colles. The question of anæsthesia became an important one, as well on account of his period of life as of the fact that there was much irregularity of the pulse. By the ordinary physical examination, no sign of any structural lesion of the heart could be detected, either after hurried exercise or when at rest. The man was a very placid creature, and willing to submit to any operation for his cure. During his stay in the hospital, he witnessed the effects of anæsthesia in varied patients who had undergone operations, and he stated to me that he was anxious to submit himself to the same influence. I made an experimental trial two days before that arranged for the operation, and found I could succeed without influencing materially the pulse. I did not press the agent, and allowed its effects to pass off rapidly. He felt no uncomfortable sensations from the experiment. He moved about, ate his meals, and slept, as usual. On the morning of the operation he was calm and placid as heretofore, and felt no apprehension of its effects or of its results. He dressed himself, walked up to the operation theatre, entered into conversation with those around him, and placed himself on the operation table without the slightest murmur. An operation, necessarily tedious from its complicated details, was undergone without a particle of suffering, and this aged man awoke, if I may so express myself, from his anæsthetic sleep, with a countenance as calm as if no operation had been performed, and with a pulse as firm as previous to it.

"I have selected these as extreme cases, illustrative of the opportunities we may avail ourselves of to alleviate human sufferings, even under the untoward circumstances I have specified; but it should never be forgotten that such are exceptional cases, and of a class requiring the most careful circumspection, and that, as a general rule, we should avoid those where the slightest deviation from the normal condition of any important organ presents itself. Assuming, however, that no such objection exists, many opportunities present themselves of witnessing the beneficial effects of this valuable assistant to the surgeon in the diagnosis and treatment, operative or otherwise, of injury and of disease.

"I could enumerate many instances illustrative of this. In dislocations, in amputations, primary and secondary, in the removal of tumours in varied situations, the removal of the breast, of the testicle, in operations on the urethra, in hernia, in necrosis, in lithotomy, in the extirpation of the eye, in numerous plastic operations, and others of a comparatively minor character, cases could be brought forward in which I adopted it, and an equally considerable number and variety could be reported from the communications I have received on the subject. However, it would be inexcusable to occupy the time of the Society with their details; and especially as many of those cases are familiar to members present, and no very remarkable peculiarities having presented themselves in the majority, I should prefer special allusion to those alone which may answer the practical objects in view, as we proceed.

"Independent of the cases above noted, I might mention others in which anæsthesia was had recourse to, but in which, as far as my experience at present goes, its adoption is, to say the least, injudicious, as well from the seat of the disease requiring surgical interference, as from the necessary position of the patient during the operation. In fistulæ in ano, and in hemorrhoids, where operative proceedings are called for, I am by no means satisfied with its results. I doubt if the best position for the patient in such cases is not leaning forward over a bed, table, or chair, and very often he is necessarily not a passive agent during the operation; if such be the fact, the objection to the use of anæsthetics is obvious.*

"In operations about the mouth, such as the removal of the upper or lower jaw, either partially or wholly, the propriety of anæsthesia appears to me to be more than questionable, for reasons similar to those already mentioned, quite independent of the risk of the attendant hemorrhage; and this same remark is applicable to any operation implicating the cavities of the mouth or nose. In some of those cases, particularly that of the removal of the lower jaw, I have imagined that the attendant pain has been mitigated materially by partial inhalation, both previous to and during the stages of the operation, but it requires great caution, and the nose is the organ through which the vapour of the agent must pass, it being absolutely idle to attempt it through the mouth. I might instance cases in ophthalmic and in obstetric surgery where equally important obstacles exist to the safe and successful induction of anæsthesia. These cases, however, have attracted the attention of far more competent authorities, and it is not requisite that I should do more than allude to them. I have used anæsthesia satisfactorily in a case of extirpation of the eye by Dr. Jacob at the Baggot-street Hospital, and in a similar operation, in private, by Mr. Wilde. In many other operations of his, such as painful plastic operations and operations on the face and lachrymal appendages, it has been of immeasurable value; but in those operations involving the interior of the orbit or the globe of the eye, such as strabismus and extraction of cataract, where a certain amount of assistance on the part of the patient is requisite during the several stages of the operation, I fully agree with my friend Mr. Wilde as to its inapplicability."

With regard to the *mode of administering the vapours of anæsthetic substances with the view to securing their salutary effects*, Dr. F. observes that "certain rules must guide the surgeon, which should be observed as rigidly as in the performance of his varied operations, in order that he may be prepared to meet any contingency. He should have a clear and distinct knowledge of the

* I have occasionally found that the seat of disease or injury is, when under anæsthetic influence, as if cognizant of what is contemplated, or, in other words, that its organic sensibility is not destroyed, and it is hence absolutely indispensable in some operations that the surgeon should be prepared for this, to avoid any rash movement on his part or on that of his patient. Thus, I have seen the rectum protruded, in cases of disease engaging it, when the patient was perfectly unconscious, and all tactile sensation blunted. In a similar state of the system, I have seen the upper and lower extremity, the seat of the operation, thrown into automatic movements, whilst the remaining portions of the muscular system were tranquil and motionless; and in sounding for the stone, and in the stages of the operation of lithotomy, I have seen a regular paroxysm of what is termed a fit of the stone when the patient was perfectly anæsthetic, as far as the conclusive signs of such state are concerned. I have witnessed, in a case of congenital phimosis, in a young officer, which he wished to be removed, the penis thrown into a state of turgescence when the operation was perfectly impracticable until it subsided, and this although consciousness and sensation were obliterated. I must here add that such conditions of the organ I never before witnessed; but I have repeatedly witnessed unsatisfactory anæsthetic effects where it was the subject of operation, and especially where the parties were inveterate smokers or drinkers. A curious coincidence once occurred in the case of a dog of the bull-dog tribe, who had an enormous growth of warty excrescences under the prepuce and around the glans, identical with those occasionally met with in the human subject. The dog was brought to our talented veterinary surgeon, Mr. Fergusson, for advice, who, whilst the dog was under anæsthesia, removed them, the penis being so perfectly rigid that he was enabled to do so without any section of the prepuce.

agent to be employed, and be fully satisfied of its purity—he should have a simple apparatus for its administration—he should consider the actual condition of the patient, as to the state of his health and strength at the time of exhibition—and selecting a proper position, free from constriction of any kind, he should have at hand remedies to counteract any injurious effects which may supervene. In all those details he cannot be too particular, if he wish to provide against accident, upon the non-occurrence of which he can never calculate with any certainty, in any given case. I may hence be permitted to enter somewhat at large upon this part of the subject. Chloroform, the agent at present in use for anæsthetic purposes, is familiar by name to all. It has now borne the test of more than three years' experience, and for it we are indebted to the untiring energy of Professor Simpson of Edinburgh, whose name can never be mentioned but with gratitude and respect. The advantages which this agent possesses over that first suggested, it is unnecessary for me here to specify. Suffice it to say, that the surgeon who contemplates the induction of artificial anæsthesia should accustom himself to the appearance of this agent, to its peculiar smell, and to those simple tests of its purity which are always within reach. Its specific gravity in its fluid state, and especially in a state of vapour, he should never lose sight of, all those and other particulars being of great practical value. I never use chloroform without examining it by the simple tests of litmus paper and water, and if at hand, a solution of nitrate of silver. If the former remains unaffected by the vapour, and if some of the specimen dropped into a test-glass containing either of the latter fluids, occupies the bottom of the glass as a clear transparent globule, I am satisfied that it is genuine, or at all events suited for practical purposes. But if, on the contrary, the litmus paper is reddened or bleached, and if the globule appears opalescent, or like a muddy lens, I reject it as adulterated, and unfit and unsafe for use. I mean not to attach to those tests any undue amount of preference. I am aware that there are others, but they are more adapted for the laboratory and for the chemist, and I can add, with confidence, that those I specify will answer all practical purposes. I place much confidence in them, and they are certainly more within the reach of the practical surgeon than that suggested by Professor Gregory of Edinburgh, and, as far as I can learn, they are equally valuable. That an acquaintance with these details is requisite, will be obvious from the following facts, which I select from many others I could enumerate. They are illustrative of the value of attention to the specific gravity of the vapour of chloroform, and to the smell of chloroform, with a view to its effects.

"A boy, aged about 16 years, was the subject of a morbid growth of skin, which hung in loose unwieldy folds on his back. An operation was decided on, for its partial removal. A few days previous, I subjected the boy to the vapour of chloroform with satisfactory results. The operation was necessarily performed with the boy lying on the abdomen; I administered the chloroform without reflecting on its high density; the boy was himself aware of the difference in the effects on this occasion, and there was no relief to his pain. In the after stages of the operation his position admitted of change, and with it the effects of anæsthesia were decisive. Again, a fine boy, aged about 10 years, was supposed to labour under the symptoms of stone in the bladder: he was brought to town for advice; at two separate sittings he was sounded, under the full influence of chloroform, which I knew to be genuine. The specimen was exhausted, and I was obliged to procure some, in a hurry, on a third occasion. The boy, on smelling it, at once perceived a difference, could hardly be induced to inhale it, and its effects were so distressing that he never afterwards would submit himself to the anæsthetic influence. On subsequent examination, I found that the smell was that of naphtha, and that the specimen had been made from naphtha."*

* Whilst these pages were passing through the press, a case occurred which gives additional proof of the importance of attention to the above particulars.

A servant girl had, by accident, a portion of a fine sewing needle impacted in the palm of the right hand, and previous to the attempt at its removal, I administered chloroform. My supply being small, my friend Dr. Hardy brought me some which he had

As regards the dose of the agent to be administered, Dr. F. remarks "that he is a rash practitioner who would presume, even on the most extended experience, to overwhelm his patient with such a powerful and such a treacherous drug, irrespective of the case before him. The dose commenced with should always be a minor dose, certainly not exceeding one drachm, and it should be increased according to its effects. The most desirable anæsthetic sleep I have ever witnessed, I have produced and I have sustained, during a lengthened period, with a quantity of chloroform not exceeding one drachm, whilst eight times that quantity have been wholly inefficient under apparently similar circumstances. I have mentioned that the condition of the patient, as to his state of health and strength, and his unconstrained position at the time of inhalation, form important items in the rules which should guide us in securing salutary effects from the agent I view them as all-important, and I am of opinion that many of the unfavourable occurrences which have taken place elsewhere are mainly attributable to oversight as regards them. The infant, the child, the adult man in rude health, the aged man, the delicate female, and the man prostrated by injury or by disease, obviously require separate consideration; and the value of such distinctions will appear when the effects of anæsthesia are taken into account, where such debility and exhaustion are present, and where they are accompanied with feeble cardiac action. The case which I have already alluded to, and the particulars of which have been so honourably communicated to me to lay before the Society, are so conclusive on this point, that it is not requisite to do more than to refer to them. They will serve as a lasting lesson of caution to the surgeon under similar circumstances, at least in this country."

With respect to the position in which an anæsthetic agent should be administered, Dr. F. prefers the recumbent or semi-recumbent, either on the side or on the back, and he says, "I would never recommend its use in any other, unless there was every provision, beforehand, to place the patient instantaneously in that posture, if requisite. I would strenuously oppose any other where much delicacy or debility was present; and I would particularly insist on every article of dress being perfectly free from any constriction, especially about the neck and chest. In one instance which I witnessed, death was all but produced by the neglect of unloosing the stays of a female, and serious results arose from similar neglect in the neckcloth and shirtneck of men. In the ordinary operation for phimosis being performed by Mr. Wilmot, whilst the patient was in a sitting posture, I was administering chloroform, when I observed the man's face become pallid and his head droop. There was absolutely no pulse to be felt at the wrist, and even the action of the heart had apparently ceased. Had he not been rapidly, but cautiously, thrown into the horizontal position, to assist ordinary stimulants, he must have died. A lady who had her forearm amputated for malignant disease at the wrist mentioned to me that, preparatory to the operation, she was placed sitting in a chair, and subjected, in that position, to anæsthetic influence, and that a train of symptoms, accompanied with the most frightful prostration (but with perfect consciousness), supervened, in consequence of which the operation was deferred, and only proceeded with at her urgent request, after four or five hours delay, whilst she was in bed. Cases, doubtless, may occur where patients are in rude health, and where the peculiar

lately procured at one of our first establishments in this city, and which at the time was considered to be genuine. He had never opened the bottle, which was provided with a glass stopper, and a leather cap over it. I found its smell pungent and disagreeable, and quite different from that of pure chloroform; it was yet perfectly clear and transparent. When inhaled by the patient, it could hardly be tolerated, and it produced incessant spasmodic cough. It answered, however, to keep up the anæsthetic effect produced by the first specimen. It was afterwards found that litmus paper was reddened by it, and that free hydrochloric acid was present, and, moreover, that the same change had taken place in the contents of the bottle at the laboratory from which it was supplied. The impression is that some decomposition had taken place. This fact shows the necessity of testing every specimen of chloroform immediately before administration, as it appears that a perfectly genuine article may undergo important chemical changes. It may be a good precaution to keep the drug for immediate use, in small stopper bottles, with glass caps, and to guard them against exposure to the light.

nature of the case may sanction the selection of the sitting posture; but if so, let the surgeon recollect that he can never calculate on what contingency may arise, and let him provide accordingly, and, above all, let him be circumspect when any symptoms of even an approach to delicacy or to debility manifest themselves. Many illustrations could be brought forward confirmatory of the importance of such caution, but I feel it is not requisite to do so. I may mention, incidentally, that I never hesitate to put children under the anæsthetic influence in the mother's or in the nurse's arms, but that, as the conclusive effects appear, I at once place them recumbent.

"In speaking of the condition of a patient subjected to anæsthesia, I have alluded to that extreme state of exhaustion attendant on returning collapse from injury, or on protracted suffering from local disease, as a matter of vast moment for the consideration of the surgeon. It must never be lost sight of, and it is far better that he should never think of anæsthesia if he does not bear it prominently in view. If he adheres to one of the injunctions laid down, as regards the state of the stomach of his patient, I cannot almost understand how he can escape some fatality. I am fully alive to the importance respecting the impropriety of inducing anæsthesia immediately after a meal, but I am equally satisfied that even such a condition is less hazardous than the opposite extreme, and that in delicate females, and in persons exhausted by long-continued suffering, the very consequence sought to be avoided is rather encouraged. I have met with very unmanageable sickness of the stomach after fasting, purposely protracted with a view to the inhalation of chloroform. It is, therefore, well to avoid it. I may instance a case of congenital cataract operated on by Mr. Wilde. The subject was a delicate girl aged about 12 or 14 years. Sickness supervened during the steps of the operation, although she had had no food from the previous evening, and, moreover, the anæsthetic condition was by no means satisfactory.

"The first case of this kind in which it struck me that salutary anæsthetic effects might be secured, occurred in one of the constabulary force, a patient in Steevens' Hospital. He was the subject of disease of the knee-joint, advanced to a stage to demand amputation, and was in a state of such extreme exhaustion that the operation was not free from danger. It was most desirable to save him the shock and pain of it, and yet his condition appeared to militate against the use of chloroform, for which he was most anxious. It struck me that some dietetic stimulant might answer as a protective, and I gave him, about half an hour before the operation, some brandy beat up with the yolk of egg. The chloroform was now administered in his ward, previous to his removal to the operation theatre; the limb was removed by Mr. Wilmot, and he was replaced in bed, without knowledge or pain throughout the whole proceeding, and in a condition not appreciably different from that which preceded it. At St. Vincent's Hospital, not long since, immediately before the operation, by Dr. Bellingham, of the removal of a very painful disease of the great toe, I adopted the same expedient in a weakly woman, aged beyond 50 years, preparatory to the exhibition of chloroform, and the general remark was, that the anæsthetic effects were satisfactory throughout, and that the strength of the woman was rather improved than otherwise after the operation, although it was somewhat protracted. The case of advanced phthisis, already noted, was treated in the same manner, and others could be brought forward confirmatory of the value of such proceeding. I may, then, venture strongly to recommend to the profession, as an excellent protection in those cases of prostration or of debility in which the use of chloroform may not be otherwise contraindicated, the administration of some cordial stimulant in a small compass, before the operation. I have never witnessed the slightest attempt at sickness produced by it, and it has always acted as an efficient and safe stimulus.

"In addition to the above precautions, I would recommend the surgeon always to provide himself with a sponge and basin of cold water and a bottle of ammonia. They, with a stream of cold air about the patient, are the best remedies with which I am acquainted for controlling the anæsthetic effects of chloroform within safe limits, and by their alternate use I never hesitate to prolong those effects, and to renew them when necessary, until the object of the

surgeon is completed. I may instance a case of femoral hernia, complicated with ascites, in a man aged beyond 40 years, a patient of Dr. Bellingham's, where operation was required, and where the steps of the operation were necessarily tedious: here the anæsthetic influence was thus kept up for nearly an hour, in the intervals of the exhibition of the agent, and no inconvenience was experienced. I would, then, recommend them as indispensable adjuncts before an operation is commenced, as they may be suddenly required, and may not be so easily commanded during its performance. I never omit them."

Dr. F., like most observers, prefers the agent to be administered gradually; that free atmospheric air should be alternated with its vapour; that, throughout the whole period, care should be taken to admit it in proportion to the effects produced; and that progressive rather than sudden anæsthesia should be aimed at. "The surgeon," Dr. F. remarks, "who witnesses the effects of those anæsthetic remedies, no matter how warm an advocate he may be for their use, cannot conceal from himself the practical fact, that the most extraordinary, the most unaccountable uncertainty attends their administration, and that this is, by no means, always referable to any impurity in the agent employed. I have used chloroform very extensively, and in almost every variety of case. I have used it in the infant, in the child, in the adult, and in the aged. I have procured it from the best sources in the city, and from none, I must say, more uniformly certain as to its effects, than from Mr. Hunt. I have, moreover, procured it from Duncan and Flockhart of Edinburgh, through the talented advocate for, and originator of it, and I can unhesitatingly assert that, as regards its effects, I never could calculate with any certainty as to what they would be in any given case. I admit, as has already been alluded to, that they are much influenced by purity of agent, and by varied character of constitution, and of injury, or of disease; but I have fruitlessly attempted to establish any unerring data upon which their actual nature can be anticipated, either in order of occurrence or of intensity.* Without entering too much at large upon them, it will answer all practical purposes to consider them as premonitory, conclusive, and incidental. The two former being usually present, the last not necessarily so; the premonitory being ushered in by symptoms extremely variable, but generally indicative of momentary excitement of some one kind or other, and such often suddenly subsiding when the conclusive or true anæsthetic set in. In not a few instances, however, the premonitory continue persistent, and are accompanied with a state bordering on a regular epileptic attack, consciousness being completely annihilated, and the most extreme vascular turgescence being superadded to frightful muscular movements. Under ordinary circumstances, this stage of excitement is more manageable, and, although some little restraint is requisite, yet, by slight control, it passes off.† If such train of symptoms were not accompanied with any severe struggling or opposition on the part of the patient, I would recommend the persistence in the application of the agent until the conclusive effects were produced; but if otherwise, I would at once suspend its use. I would encourage the patient: I would reason with him, and he can often be reasoned with, and at the same time I would steal on the application, keeping the apparatus near the face. In delicate females and in children, I would be particularly circumspect in observing those precautions. I would deprecate violence of any kind: and if by persuasion, or by unobserved manipulation, I did not succeed, I would prefer suspending the inhalation altogether,

* It is, moreover, a fact worth recollecting, that the same uncertainty attends the repetition of the anæsthetic agent at different periods. I have heard persons calculate with much confidence upon producing most satisfactory anæsthetic effects, because in experimental trials, before an operation, they had succeeded; yet, on the operation table, the very opposite was the result.

† I have witnessed some few cases where absolute violence was attempted under such excited condition. In one, of an officer being operated on for fistula in ano, he jumped up off the sofa on which he had been placed, and put himself into a boxing attitude, to the no small alarm of his surgeon. It is surprising, however, how easily controllable persons are under such circumstances, and there is not the slightest recollection of the occurrence.

to rashly pressing it, when the patient appeared to be inimical to its full or salutary influence. During the cries of children, you will often succeed most satisfactorily, by playing carelessly with the sponge or other apparatus before them, when you will find that they are imperceptibly brought under the anæsthetic influence.

"Premonitory symptoms, such as the above, are occasionally totally absent; not a trace of them is to be observed. Perfect anæsthesia is as if instantaneously produced, whilst again in other cases they are merely transitory, and the conclusive supervene. Those are so characteristic as to require no special description. To the medical practitioner, they are fully indicative of the symptoms of cerebral congestion, and oppression from ordinary causes, familiar to him in practice, and he cannot witness them without somewhat of alarm. They are, in appearance, very formidable, and the surgeon cannot divest himself of a certain degree of anxiety unless he possesses an amount of rash confidence, which is always to be deprecated. When this train of symptoms manifests itself, he should at once suspend altogether the use of the agent—allow free access of air to his patient—keep up a perpetual current of reflex action, if I may so express myself, by constantly sponging the face with cold water—and renew, or otherwise, the agent according to the necessity of the case, by watching the stage of the operation, and especially the state of the circulation, as evinced by the pulse and countenance, the condition of which must guide him as to the use of ammonia, or fresh inhalation of the agent.

"Such are the conclusive or full anæsthetic effects as usually described and witnessed; but the most perfect anæsthetic sleep, and that which it would be most desirable always to establish, may exist in the absence of that apoplectic state which has just been alluded to. The countenance is calm and placid: there is an absence of vascular turgescence, capillary or otherwise; and the respiration is so tranquil that it is scarcely perceptible. Of such I have witnessed numerous instances, and some where, although tactile sensation was completely blunted, yet consciousness was not fully destroyed. Thus, a man had been operated on in one of the provincial hospitals in England for malignant cancer of the lip: a fungus sprung up from the cicatrix of the wound made in the operation, to which, after inefficient trials of other remedies, it was deemed prudent to apply the actual cautery. I put him under the influence of chloroform. The premonitory effects were mild, the conclusive placid. The man was conscious of the whole proceedings antecedent to the application of the iron at a white heat, and winced not in the slightest degree during it, remaining perfectly unmoved, and not suffering the slightest pain. I have seen the os calcis removed in a delicate strumous boy, in this form of anæsthetic sleep, when, during a dissecting operation, he was as motionless as a statue. I have seen Dr. Mayne perform Professor Syme's operation on the foot (an equally searching operation) on a young woman, under similar circumstances; and others I might extract from my note-book, and especially those of the autoplastic class, in which this desirable condition existed. This is the anæsthetic effect which it should be the aim of all to accomplish, as in it, there is no apparent derangement or distortion of function, so unpleasant to witness in that usually produced, and so justly deemed inimical to the general application of those remedies, but unfortunately it is most uncertain in its production. Were I to hazard an opinion, I would say it was more likely to supervene in those cases where there has been much suffering and much exhaustion from protracted disease of the bones or of the joints, as met with in strumous individuals, or after injuries, where much hemorrhage and collapse has occurred; and it is well, in a practical point of view, to bear it in recollection, as such *form of anæsthesia may rapidly and unexpectedly establish itself, the dose of the agent being often remarkably small which may induce it, and the ordinary premonitory signs not always preceding it.** When the class of symptoms above alluded to super-

* The following cases may be noted:—

A child, miserably delicate, and aged about six years, was brought to hospital in the advanced stage of hip-disease, with the additional deformity of flexure of the thigh on

venes, the surgeon cannot be too cautious as to his mode of proceeding. The order of anæsthetic influence appears to be completely subverted, and he must, at once, suspend all operative proceedings until he satisfies himself about the condition of his patient. If he attempt to persist in pressing the agent, I would apprehend fatal results. He must stop its inhalation—he must substitute ammonia—he must admit fresh air, and adopt the restoratives I have already mentioned—he must watch the pulse and the colour of the countenance and lips of the patient, the latter of which I consider a very good guide to the state of the circulation and respiration—and he must only recur to the agent as the case may require it, alternating its vapour with that of ammonia.

"What I have termed the incidental effects of chloroform are not always present, but they are not the less deserving of attention. They may be primary, whereby I mean they may occur during the administration of the agent, or they may be secondary, and occur subsequent to it. They constitute those deviations from that usual course of anæsthetic symptoms with which surgeons are familiar, and must have been witnessed by any conversant with such. In persons in apparently rude health—in smokers—in persons long habituated to the use of opium, or its preparations—in persons of intemperate habits, either large eaters or drinkers, I have often observed that the course of anæsthesia is irregular.* In persons of a nervous or hysterical temperament, both males and females, it is by no means unfrequent to meet with those incidental symptoms. The premonitory, at the commencement, bear some slight similarity to those usually presenting themselves. The conclusive, in many such cases, *cannot be accomplished*, the system appearing to be absolutely unsusceptible of their supervention. Violent convulsions occur, sometimes engaging the whole muscular system. The contents of the bladder and of the rectum are discharged, and, in other instances, you have all the ordinary attendants on a regular fit of hysteria, such as laughing, crying, and sobbing respiration. During this train of symptoms, there is often a certain amount of consciousness, and if the special object of the surgeon be accomplished, be it operative or otherwise, all tactile sensation appears to be destroyed, as afterwards learned from the patient, although

the pelvis. The limb was extended under the influence of chloroform, the effects of which were instantaneous, and unaccompanied by any of the ordinary conclusive signs.

A boy, aged between 10 and 12 years, had his right upper extremity caught between the rollers of a paper machine. An extensive lacerated wound occupied the upper third of the arm, through which the fractured ends of the humerus could be seen, jagged and spiculated, some detached portions of bone also lying in the wound. The forearm presented, in the integuments and fascia, a longitudinal rent, through which torn portions of muscles protruded, the bones being bared, but not broken. The unfortunate boy was screeching with agony, and with dread at the approach of the surgeon. Under the most rapid and placid anæsthetic influence of chloroform, the limb was adjusted, and from day to day it was dressed, he being, at each dressing, placed in a similar state, and so freed from necessarily intense suffering, the quantity of the agent used on each occasion being under one drachm.

* That this untoward course of anæsthetic effects is not owing to any impurity in the drug, or in its mode of exhibition, may, I think, be assumed from the following case which I witnessed in the Royal Infirmary of Edinburgh in January, 1849, when passing through that city. The case was under the care of Professor Miller, whose advocacy for surgical anæsthesia, and whose valuable remarks on the subject, are, I should suppose, familiar to most members of the Society. A man, aged somewhat about 25 or 30, had dislocated his shoulder some weeks previous to his admission into the infirmary. He was carried into the operation theatre on a couch, and, in the horizontal position, was subjected to the influence of chloroform, in no very measured amount, from an ordinary towel, funnel-shaped. The usual conclusive effects were not produced; the man, when the means for the reduction of the dislocation were applied, resembled one labouring under an aggravated epileptic attack. His countenance was bloated and congested, and the automatic movements of the different muscles were very formidable. The dislocation did not appear to me to be reduced. I afterwards learned that this man was of most intemperate habits. I may add, that he quickly recovered from the effects of the agent, and that he stated to me he was wholly unconscious of pain, or the proceedings gone through.

there are strong external manifestations of extreme suffering. It is in this condition of the patient that the secondary incidental symptoms are often most alarming, if the surgeon is not prepared for their presence, and I am strongly disposed to the opinion, that the cumulative properties of the drug, as they are termed, manifest themselves more decidedly here than in any other case.

"There is nausea, vomiting, pallor of the countenance, and extreme debility, as evinced by a pulse hardly perceptible, by cold extremities, and a proportionate amount of cerebral oppression. I have not seen any fatal results from such symptoms, but I have seen them persistent for two, three, four hours, requiring the most studied exhibition of stimulants to remove them; and, what is still more remarkable, they will occasionally recur at irregular intervals, after their apparent subsidence. It is, however, but right that we should bear in mind, that an identical train of symptoms may supervene, where artificial anæsthesia has not been had recourse to, in subjects of the same class, after an unusual excitement of the nervous system, no matter from what cause originating. In a practical point of view, it is most important that we should recollect the possible occurrence of such symptoms, as it will be a guide to us not to press the agent with a view to its conclusive effects, under the circumstances. I could instance cases of this description where undoubtedly the advocate for anæsthetic agents should hesitate to subject his patient to their influence, could he anticipate such results. The symptoms are so distressing, even as regards the mental sensations of the patient, that, should any circumstances require subsequent surgical interference, he never can be induced to submit himself to a repetition of them. I have fancied that I have prevented this effect of chloroform by the exhibition of an anti-hysteric draught before its inhalation, in an apparently hysterical female, but my experience is too limited to venture to speak with any confidence respecting it. The expedient may be worth consideration.

"There are circumstances connected with the effects of chloroform, or other anæsthetic agents, as regards the wound, the seat of operation, which are very interesting—namely, the condition of the blood—the condition of the muscles, especially in amputations—the occurrence of after-pains or of hemorrhage, and the possible interference with healthy reparative processes. Each and all of those subjects deserve much attention, but I must only glance at them. I am disposed to say, as regards the blood, that I have more frequently observed its natural appearance in the respective vessels than otherwise—that I have seen excellent formed stumps after anæsthetic amputations—that primary hemorrhage is decidedly more the exception than the rule in similar cases*—and that reparative processes have not particularly attracted my attention as interfered with or deranged since the introduction of anæsthesia. These are subjects, however, which must be considered to be, as yet, unsettled. Indeed, it appears to me that, with respect to the whole subject of artificial anæsthesia, we are yet in the infancy of our knowledge, and that the stamp of the conclusive effects of chloroform in one set of cases is so diametrically opposite to that met with in others, it, in my opinion, proves that we have yet to learn the true secret of its salutary administration. I am, however, an advocate for its use in operative surgery, but I am so within restricted limits. In the details given of its effects I have not concealed the dangers and the difficulties to be encountered by the surgeon: on the contrary, I have enumerated many, and I venture to hope that I have suggested the means whereby some may be removed or lessened. I yet contemplate the adoption of anæsthesia in every instance with anxiety, and I hence deprecate it unless the serious nature of the case demands it.† I am

* The subject of hemorrhage, after operations, and that of the reparation of such wounds in anæsthetic cases, I have, in conjunction with Mr. Wilmot, particularly investigated. Mr. Wilmot's opportunities, when resident surgeon in Steevens' Hospital, were considerable, and he hesitates not to confirm the opinion of the comparatively rare occurrence of the one, and the non-interruption of the ordinary healthy processes in the other, the symptomatic fever being unquestionably less violent, and that reaction on the nervous shock attendant on operation being almost nullified.

† The operation which the advocates for anæsthesia recommend the skeptic to witness, is that of lithotomy. I lately placed a child, aged about two years, the subject of

strongly opposed to it in trifling, passing operations. I am favourable to it in all severe operative proceedings, with the exceptions I have noted, and with the precautions I have specified, and I have witnessed such transcendent, such indescribable benefits from it, both in allaying the shock and in abrogating or mitigating the pain attendant on injuries and on operations, that I cannot too strongly impress on the minds of all, the imperative duty of studying its effects, whereby its proper and safe adoption may be secured, and the moral and medical arguments against its use be substantially lessened.*

"One of the most interesting and most happy effects of chloroform I have ever witnessed occurred in the following distressing case, in April, 1849:—

"A young lady, of highly cultivated mind, aged about 25 years, and unmarried, was obliged to submit to amputation of her thigh, for malignant disease engaging the bones of the leg. She had heard of chloroform, and was anxious to learn particulars respecting it, but had, by no means, made up her mind to submit to its influence. I had recourse to the device (which is occasionally admissible, particularly in children) of sprinkling some Eau de Cologne on the outer sponge of the apparatus—the inner being already saturated with chloroform; she was sitting in bed, and in conversation with Sir Philip Crampton, when, taking the apparatus in her hand to examine it, she commenced to inhale from it. After some few minutes, I observed that she was somewhat incoherent and unconscious. I took the apparatus from her, renewed the chloroform, and in a second or so, she lay tranquilly back in our arms. We carried her to the adjoining room, where the necessary appliances for amputation had been previously prepared. The details of the operation were gone through by Mr. Colles, whose patient she was; she was afterwards replaced in bed, and all this occurred without any suffering on her part, and in complete ignorance of all proceedings. It was not without some difficulty that Sir Philip Crampton could persuade her that the operation had been performed. Here, then, was true anæsthetic sleep —no stertor—all was perfectly placid."

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21. *Acute Traumatic Tetanus treated with Chloroform.*—R. G. H. Butcher, Esq., relates (*Dublin Med. Press*, July 30th, 1851) a case of acute traumatic tetanus, in a boy eight years of age, treated by the inhalation of chloroform. The article rendered the paroxysms shorter, and mitigated their violence, but, as in the other cases reported, did not arrest the disease; and the patient died twenty-four hours after first complaining of stiffness of the neck and difficulty of swallowing, and twenty hours after the accession of the first paroxysm.

such, under its influence. The child was a patient in the Meath Hospital, and was operated on by Mr. Smyly, and all who witnessed the operation must have been gratified. Cases of other children I might also enumerate. I will merely remark that, in Ireland, patients are not always as still and as motionless (though in profound sleep) as elsewhere depicted, and Irish surgeons will bear this in recollection. The same automatic muscular movements occur, as too often witnessed in amputation.

* I am gratified to have the permission of Sir P. Crampton to publish the following very apposite letter on this subject. Coming from an authority so justly estimated and so highly respected, it cannot fail to produce proportionate good:—

"Merrion-square, January 12, 1851.

"Dear Fleming.—With reference to your inquiry, 'whether I have found artificial anæsthesia beneficial or otherwise in surgical cases,' I have no hesitation in stating that I have found it eminently beneficial, not merely in cases of operation, but of severe injury, and of neuralgic affections, unconnected with injury. I have seen chloroform and ether employed in numerous cases both in London and Dublin, and having myself employed them extensively both in public and in private practice. Up to this period, I have never seen artificial anæsthesia productive of any serious inconvenience; whilst its power of preventing or greatly diminishing pain has been decisive. I am far, however, from asserting that fatal consequences have not occasionally resulted from its use. I trust, however, that a more extended experience will lead to the discovery of means of employing this powerful agent, which, without impairing its effects, will render it more safe.

"Believe me very sincerely yours,

"Philip Crampton."

22. *On the Use of Collodion in Ingrowing Nail.*—M. Meynier treats this affection by pressing down the fleshy portion, and pouring in between this and the edge of the nail a small quantity of collodion, which soon solidifies, induces rapid cicatrization of the ulceration, and, when the disease does not arise from an abnormal shape of the nail, procures a cure. M. H. Larrey has recently tried the plan in five cases, and succeeded in four of these.—*Bull. de Thérap.*, tom. xl. p. 185.

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23. *Some Observations on the Pathology of those Affections of the Ear which produce Disease in the Brain.* By Joseph Toynbee, F. R. S. ("Proceedings" of Royal Med. Chirurg. Society, June 24, 1851.)—In this communication the author has a twofold object: the first is to point out the nature of the several affections of the ear which produce disease in the brain; the second to show that each of the cavities of the ear has its particular division of the encephalon, to which it communicates disease. Thus, that—

1. Affections of the external meatus and mastoid cells produce disease in the lateral sinus and cerebellum.
2. Affections of the tympanic cavity produce disease in the cerebrum.
3. Affections of the vestibule and cochlea produce disease in the medulla oblongata.

1. In speaking of the external meatus, its intimate relations with the lateral sinus and cerebellum are pointed out; the affection most frequently producing disease in these parts is shown to be catarrhal inflammation of its dermoid layer, one of the numerous diseases which have hitherto been classed together under the term otorrhœa. This affection of the external meatus is fully described; and it is shown that it is found to endure during many years, without the presence of pain, or any other symptom calculated to apprise the surgeon of the presence of a formidable disease, while the bone may be becoming slowly carious, and portions of the dura mater and cerebellum disorganized.

In the second division of the paper, the tympanic cavity is described to be the part of the ear from which disease is most frequently propagated to the brain. This circumstance is accounted for, first, by the great liability of the mucous membrane of the tympanum to undergo pathological changes; and, secondly, by the existence of very intimate relations between this membrane and the dura mater. The affection of the tympanum which most frequently produces disease in the cerebrum is chronic catarrhal inflammation of the mucous membrane, an affection thus far only known as an otorrhœa. The four changes in the dura mater and cerebrum produced by the affections of the tympanum are—

1. Inflammation of the dura mater, and its separation from the surface of the petrous bone by serum.
2. Ulceration of the dura mater, and its complete detachment from the petrous bone.
3. An abscess in the substance of the cerebrum.
4. Undefined suppuration of the substance of the cerebrum.

From a careful examination of cases, it appears that chronic catarrhal inflammation of the mucous membrane of the tympanum may exist as many as twenty or more years, without the production of any disease beyond it, or at least without the existence of symptoms by means of which the presence of such disease can be diagnosed; nevertheless, in the great majority of cases, vital structures become sensibly affected in a much shorter period.

The third section of the paper is devoted to the consideration of the labyrinth, and it is shown that purulent matter in the vestibule or cochlea sometimes causes disease of the auditory nerve, which is transmitted to the medulla oblongata, producing suppurative inflammation of the meninges, and death, without the presence of any caries of the bone.

In the course of this paper, the author shows the necessity of abolishing the use of the term otorrhœa, and of using in its place the names of the several diseases, eight in number, of which a discharge from the ear is one of the symptoms. In conclusion, the facts which he is desirous of impressing upon the minds of medical men are, that the bone, dura mater, and substance of the

brain may be slowly undergoing disorganization, without the presence of any other symptoms calculated to reveal to the medical man the existence of formidable disease, than the presence of a discharge from the external auditory meatus; and that, consequently, no person suffering from catarrhal inflammation of the dermoid layer of the meatus, the membrana tympani, or of the mucous membrane of the tympanum, can be assured that disease is not being prolonged to the temporal bone, the brain, and its membranes; and that any ordinary exciting cause, as an attack of fever or influenza, a blow on the head, &c., may not induce the appearance of acute symptoms, which, as a general rule, are speedily fatal. Appended to the paper are tables, giving the particulars of sixty-five cases of disease extending from the ear to the brain, in which tables the duration of the chronic and acute symptoms, and the post-mortem appearances, are concisely detailed.—*Lancet*, July 5, 1851.

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24. *Treatment of Aneurism by Compression.*—The journals of the last three months contain the reports of several cases in which compression was resorted to for the cure of aneurism; and, as the profession seem now disposed to give this mode of treatment a fair trial, we shall doubtless in a short time have ample materials from which to form an estimate of its value, and the cases to which it is particularly appropriate.

We subjoin a summary of the observations which have been recently made.

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25. *Case of Popliteal Aneurism treated by Compression; with Remarks, and a List of the Cases treated in Dublin.* By O'B. Bellingham, M. D. (Read to the Royal Medical and Chirurgical Society, June 10, 1851.)—The subject of this case was a labourer, aged forty-two, who was admitted into St Vincent's Hospital, under Mr. Bellingham's care, in November, 1850. The aneurism, which was of large size, was seated on the right side; had a strong, heaving impulse, and a short, harsh bruit was heard on auscultation over it. The treatment was commenced by placing the patient upon a very restricted diet, particularly as regards fluids (six ounces only being allowed in the day, with eight ounces of solid food), confining him strictly to the horizontal posture, with a dose of purgative medicine each night. Under this treatment, continued for some days, the pulse, from being hard and incompressible, became soft, small, and slow. Compression was commenced December 4th, at eleven A.M., by means of two instruments, one upon the artery where it crosses the ramus of the pubis, the other at the lower third of the thigh. At half-past eight P.M., the outlines of the aneurismal sac were more distinct; the patient's skin was cool, and he did not complain of pain. He remained awake during the night, and kept up the compression himself, the points upon which the pad of the instrument should rest having been marked with ink. Next morning, between nine and ten, on unscrewing the instrument, the pulsation of the aneurism was found to have ceased; the tumour was hard, solid, and circumscribed, and an enlarged collateral vessel was felt over the centre of the popliteal region. Moderate pressure was continued for some days; the patient was kept in bed, and the diet was gradually improved. The tumour diminished in size, and became harder, and when the patient returned home, the limb was as strong as the other, and his general health perfectly good. Some remarks upon the treatment of aneurism by compression followed, in which the author contrasted the results of compression and the ligature, and pointed to the advantages likely to ensue from combining constitutional with local treatment. In a table appended to the paper, the author has given a list of all the cases of external aneurism treated by compression in Dublin during the last seven years, in which the seat of the disease is mentioned, the hospital or other locality where the treatment was conducted, the surgeon's name who had the management of the case, and the results are stated. Of these, it appears that twenty-six were cases of popliteal aneurism, twenty-one of which were cured; six were cases of femoral aneurism, of which five were cured, the sixth having been a form of traumatic aneurism in which amputation of the limb was the only resource. Three were cases of brachial aneurism, of which two were cured; in the other, a high bifurcation of the brachial artery existed, and two

vessels required to be tied. One was a case of radial aneurism, which was cured by compression. Of the remaining five cases of popliteal aneurism, amputation of the limb was performed in one, the patient recovering; in a second, the ligature was used with success; in a third, the patient was obliged to return to his employment before the cure of the disease; the aneurism diminished in size, and the patient continued to work for above three years afterwards, when symptoms of aortal aneurism supervened, under which he sank. In a fourth, the patient died of pulmonary disease, and the fifth patient, who was of a broken-down constitution, died of erysipelas.—*Lancet*, June 21, 1851.

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26. *Popliteal Aneurism; Pressure; Deligation of the Femoral Artery; Recovery.*—The following case occurred under the care of Mr. Lawrence, and is reported in the *Lancet* (July 19th, 1851). William J——, aged thirty-one years, waterman, light complexion, short stature, and habitual good health, was admitted into Bentley ward, January 27, 1851, under the care of Mr. Lawrence. The patient states that his habits have generally been temperate, that he has not overworked himself, and that the only ailment he had had to complain of was an occasional pain in the chest. Seven months before admission, he noticed in the right popliteal space a tumour of the size of a marble, which pulsated visibly: the circumstance caused him, however, no alarm, and he was content to rub the tumour with turpentine, without seeking for medical aid. The tumour, however, gradually increased in size, without giving intense pain, and the patient was enabled to attend to his occupation up to two days before admission.

When examined, the tumour was found to be of the size of an orange, situated in the centre of the popliteal space, and presenting very strong pulsations. The hand applied over the swelling received the sensation of a distinct thrill, and a loud bruit was heard on the application of the stethoscope. The patient did not complain of a great amount of pain, neither in the tumour nor in the leg, and the rest of the arterial system seemed in a sound condition.

Mr. Lawrence resolved to try compression of the femoral artery in order to arrest the progress of the disease, and on the 31st of January, four days after admission, a compressing apparatus was applied. It was the usual clamp-shaped instrument, provided with two pads connected with the steel rings (which encircled the thigh without compressing it) by screws of spring materials, the upper part of the screws working as ball and socket. One of the pads was made to press upon the artery in the groin, the other in Scarpa's space, and they were intended to act alternately.

By the use of this instrument, the pulsations of the tumour were completely arrested; the patient, however, stated that the pressure gave him intense pain, and that he should probably not be able to bear the compression long. Nor did his feelings deceive him, for he could endure the apparatus but two hours, at the end of which time it was removed. On the 4th of February, four days after the first application of pressure, Mr. Lawrence proceeded to place a ligature on the femoral artery, the patient having been rendered insensible by chloroform. The artery was tied in Scarpa's space in the usual manner. The pulsations of the tumour ceased immediately, and have never returned.

No untoward symptoms whatsoever marked the progress of the case, and so thoroughly did the collateral circulation become established in a short time, that the limb did not sensibly lose any of its natural temperature, though no cotton-wool nor flannel wrappings were used. The patient did not complain of pain in the leg, and he seemed to experience no uneasiness but what might be expected from a common wound in the thigh.

Ten days after the deligation of the vessel, there was a little numbness in the foot; the latter was, however, not cold, and the wound in the thigh looked well. The tumour in the ham had now become quite hard; there was no thrill or pulsation to be noticed in it, though the size had not materially decreased. The swelling gradually diminished, however, the patient progressed very satisfactorily, and on the 28th of March, about seven weeks after the deligation of the

femoral artery, he was discharged in good condition, the tumour having decreased to the size of a pigeon's egg, and being of very firm consistence.

The only complaint the man had made during the latter days of his stay in the hospital was of tightness and pain in the chest, unaccompanied, however, by shortness of breath. The stethoscope applied to the region of the heart did not afford any bruit or abnormal sound about that viscus.

27. *Aneurismal Dilatation of the Popliteal Artery, treated by Pressure.*—By James Paget, M. D.—The subject of this case was a gentleman, 27 years of age, tall and thin, who had enjoyed good health until October 1845, when he was injured by some boards falling across his legs, after which he suffered severe pain in his knees and legs, and muscles of calf of left leg whenever he walked. Just before Christmas, 1849, he found a pulsating tumour in left ham, which increased until seen by Dr. Paget, 9th of Jan. 1850. At this time, there was in the left ham a tumour of oval form, having its long axis parallel with that of the limb, and measuring two and a half inches by two. It pulsated very forcibly, and equally on all parts of its circumference, and, with pulsation, felt as if it thrilled. A loud bellows sound was audible with the ear placed over the tumour, or over the artery above it. The pulse in the left dorsal artery of the foot was rather feebler than that in the right; but Dr. P. could detect no difference in time between them. The skin over the swelling was tense; but its tissue, like that of all the adjacent parts, appeared completely healthy. There was, indeed, no other appearance of disease, either local or general.

The treatment was commenced on the 31st of January, when first pressure was made to the femoral artery, with one of Dr. Carte's tourniquets. Two instruments were applied, and alternately tightened and relaxed. These caused great pain; and after the fourth week, were changed for the Italian tourniquet. From this time till the 16th of February, the size of the aneurism decreased; but, after ten days, no further progress was made. On the 21st of March, the diminution recommenced; and by the 18th of April it was reduced to the size of a hazelnut, but still pulsated freely. After eleven weeks' confinement, the patient's patience became exhausted, and he wished to move about; but modified pressure was kept up for six weeks longer, when pulsation one morning suddenly ceased, and the aneurism was cured.

In commenting upon this case, Mr. Paget remarks, that the disease was probably an example of aneurismal dilatation, or, as Mr. Luke has named it, tubular aneurism; an aneurism of the cylindriform or fusiform variety described by Cruveilhier—that is, a dilatation affecting, almost uniformly, the whole circumference of the artery in a certain portion of its length. Such dilatations are very rare in the popliteal artery; yet that such a one existed here is made very probable by many things observed in the case, and especially by the great diminution of size of the aneurism while under treatment.

The cure of popliteal and similar aneurisms, whether treated by pressure or ligature, is (Mr. Paget remarks) usually accomplished much more by the filling of the sac with blood-clots, than by the contraction of the sac. Hence, usually, after the pulsation had ceased, the swelling, with comparatively little diminution of size, remains firm and nearly solid, till slowly its size is diminished by the absorption and shrinking of its contents. When, however, as in the case here related, a popliteal aneurism consists in a dilatation of the whole circumference of the artery, we may believe that there is the same indisposition to the formation of clot as in the similar dilatations of the arch of the aorta, and of other great arteries in which no part of the dilatation is far remote from the main stream of blood. In all these cases, it is a matter of common and just observation, that fibrinous deposits are scanty and rare; and, therefore, in the similar dilatations of the smaller arteries, we might expect that the effect of any continued obstruction of the trunk would be the gradual contraction of the dilated portion, rather than its filling up with clot.

Other considerations, Mr. Paget thinks, strengthen this opinion of the nature of the case here related: especially, first, that as the enlargement of the artery after the injury was very slow, there was probably no rupture or serious damage of its coats, but that such a change as might lead to their slow and exten-

sive impairment of structure: and, secondly, that the sensation derived from the touch of the dilatation was always that of a sac tensely filled with fluid, and containing no clots, such as are almost constantly found in saccular aneurisms, *i. e.*, partial or lateral dilatations of the arterial walls.

Commenting on the results of the treatment of this case, by pressure on the trunk of the artery above the aneurism, Mr. Paget thinks that, considering that the patient was instructed in surgery, and well understood the plan on which the treatment was to be conducted, that he had himself chosen this plan of treatment, and submitted to it without interruption, and that it was attended with no local injury or other inconvenience, few cases could have been better suited to the plan; yet so long a period elapsed prior to the cure, that he would not advise it in preference to ligature. He does not, however, discountenance compression, being disposed to attribute its tediousness, in the present case, to the peculiarity of the tumour above alluded to.—*Prov. Med. and Surg. Journ.*, July 23, 1851.

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28. *Popliteal Aneurism—Treatment by Pressure—Deligation of the Artery—Gangrene—Death.*—Hugh M——, aged 43, a man of spare make and nervous temperament, was admitted into Guy's Hospital under Mr. Hilton, Dec. 21, 1851. As a porter, he was in the habit of straining his legs considerably. For some time past the patient has not drunk to excess, but formerly he was very intemperate, and on being closely questioned as to any blow or injury he may have sustained, nothing of the kind is discovered. One year ago the leg and ankle swelled at times, and nine months since the patient perceived a swelling like a walnut in the ham of the left leg. No attention was, however, paid to this symptom, until a fortnight before admission, when such sudden pain seized the patient, that he could not place his leg on the ground; and he now, for the first time, noticed a pulsation in the popliteal tumour, the latter extending from the ham to the calf of the leg. The pain has since become much worse, and includes the whole thigh and leg.

On examination, a deep-seated, soft, fluctuating, and pulsating tumour was discovered, extending from the popliteal region into the calf of the leg; it diminished in size by pressure on the femoral artery, and the reverse happened when the artery was compressed below the tumour. The usual symptoms of popliteal aneurism, including a distinct bruit, were present.

Mr. Hilton prescribed rest, an elevated position to the limb, the pain to be combated with opium, and the thigh and leg to be carefully bandaged from the toes upwards. About a fortnight after admission, Mr. Hilton had an apparatus applied for the compression of the artery. It was composed of two separate instruments; the one, fixed to the pelvis, was intended to press on the artery in its course of the head of the femur; the other, applied to the thigh about half-way down, was to compress the vessel in Scarpa's space. The pulsation was not arrested by the use of these instruments, but only moderated.

The patient bore the pressure pretty well, complained only of a little cramp in the leg, and stated that the acute suffering he experienced in the limb before the apparatus was put on, was now quite removed. On the third day after the commencement of pressure, scarcely any bruit or pulsation was left in the sac, the latter was less tender and swollen, and the patient could almost straighten his leg, though he had in it a sensation of numbness and tingling.

On the fifth day he began to feel uneasy and complained of the pressure; the pain in the leg had returned, the tumour was larger and softer, and the pulsation much more forcible. On the eighth day the pain in the leg and foot was much increased, and at six in the evening the suffering was so intense that the patient could not bear the pressure or even allow the limb to be touched; the apparatus was, therefore, removed, and a drachm of laudanum administered.

Mr. Hilton now directed digitalis to be given internally, and ice to be applied to the outer side of the tumour. The ice gave much pain and was discontinued. The tumour was, however, becoming larger, and the pulsation scarcely perceptible on the inner, but more distinct on the outer side. On the tenth day after the first application of pressure, Mr. Bransby Cooper, Mr. Cock, and Mr. Hil-

ton, held a consultation on the case, and it was agreed that the artery should be tied in the upper part of the thigh.

The operation was, however, delayed for a couple of days, as active inflammation was going on in the artery and limb. The thumb lightly pressed on the femoral artery caused intense pain, both in the course of the vessel, and the whole limb; it might thus be conjectured what distressing symptoms the ligature would occasion. The patient was placed under an antiphlogistic treatment, with purgatives, &c., and as pressure could no longer be borne, Mr. Hilton had no alternative but to tie the artery (under unfavourable circumstances) or remove the leg. The first of these measures was preferred, and Mr. Hilton put a ligature on the femoral artery, about the middle of the thigh. The coats of the vessel were found much thickened and infiltrated; the patient was at once put into a warm bed, the foot and leg comfortably wrapped up in flannel.

Half an hour passed in comparative ease, when suddenly pain of the most intense and agonizing kind in the whole of the left thigh and leg seized the patient. Large doses of opium were administered, and chloroform inhaled two different times without alleviation. Opium given continuously at last procured sleep, and the patient rested the whole night and part of the following day. The man now complained no longer of pain, but of numbness; the tongue became brown and dry, and the pulse beat 110, small and weak.

On the third day after the deligation of the artery, the pain was absent, the patient slept well, the tumour became harder, diminished in size, and the pulsations did not return. Matters went on very favourably until the tenth day, when shivering occurred, and pain arose in the foot, which was now beginning to fail in keeping up its proper temperature. Wine was now ordered, and the pain having two days afterwards become very violent in the leg and around the knee, Mr. Hilton made a small opening in the sac at its inner and lower part, and allowed three or four ounces of dark, grumous, exceedingly fetid and purulent blood to escape.

Some effusion around the knee-joint was now noticed; a small opening was therefore made on its internal and inferior aspect; but no freeing of matter ensued. Pain and stiffness in the left *elbow*-joint were now complained of: a little more blood was allowed to issue from the aneurismal sac, and a plug of lint placed in the aperture. The patient now took as much as twelve ounces of wine a day, and though the pain in the elbow-joint diminished, it now declared itself on the shoulder, and intense heat attacked the affected leg and foot. Pulse 130, irregular.

On the 1st of February, being the fifteenth day after the application of the ligature, the pain had ceased, but the patient was extremely depressed; the toes on the left side, with a great portion of the foot, became insensible, and of a mottled purple colour; the wound of the thigh remained stationary and the ligature firm.

On the eighteenth day the general symptoms were worse, the gangrene spread over the whole foot and half way up the leg; several vesicles formed, and a quantity of bloody serum escaped from some of these. A line of separation appeared to form a little above the middle of the leg; but the patient, in spite of the stimulants which were plentifully given, became so exhausted that he died on the twenty-second day after the deligation of the artery, one month after the application of pressure, and six weeks after admission.

On a post-mortem examination, pus was found in the elbow, shoulder, and knee-joints. The viscera were tolerably healthy, and no ossific deposit was observed in the femoral or any other artery.

After the perusal of the foregoing case, it will become evident that pressure is a very unfavourable forerunner to the ligature, and that there are patients with whom all methods of treatment, from nervous susceptibility and want of tone, fail of yielding good results.—*Lancet*, June 14, 1851.

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29. *Popliteal Aneurism Cured by Pressure on the Femoral Artery.*—A case of this is recorded by Dr. W. Ward, of Huntingdon, in the *Prov. Med. and Surg. Journ.* (July 9th, 1851). The subject of it, aged 36, an ostler, who had always enjoyed good health, was admitted into the Huntingdonshire Infirmary, March

13th, 1847, with a somewhat diffused swelling on the popliteal space, which had a distinct pulsation through its whole extent, especially on the outside. Upon compressing the femoral artery, the pulsation ceases, and the tumour diminishes in size; the stethoscope gives a distinct *bruit de soufflet;* the tumour appears about the size of a small egg; there is great pain felt in the tumour, which prevents his sleeping at night; the general health is good; the heart's sounds are normal; the posterior tibial can be distinctly felt, although pulsating feebly; the anterior tibial more feeble, and not so distinct.

On the 19th March, Signorini's tourniquet was applied over the superficial femoral, at the upper third of the thigh, not to completely stop the circulation, but only to impede it, the intention being not to apply pressure too forcibly at first. It was borne very well for a few hours, when the tourniquet was slightly slackened by the patient. Before the application of the tourniquet the temperature of the affected limb below the knee was lower than the sound one; three or four hours afterwards the temperature increased, and became higher than the other, and a slight swelling of the foot and leg appeared.

20th. Had no sleep; at intervals has tightened and slackened the tourniquet; the posterior tibial can be felt beating distinctly; there is slight œdema of the limb. The circumference of the sound limb is thirteen inches and a half, that of the affected seventeen inches, measured round the knee. Ordered an aperient. Pulse 80; tongue clean; slight thirst.

21st. Slept tolerably well; there is considerable swelling of the leg; bowels open from an aperient.

22d. Slept but little; obliged to slacken the tourniquet, or could not sleep; pulse 84; slight thirst; the temperature of the leg higher than the sound one; felt much ease from the application of Goulard lotion to the foot and leg. Size of the limb seventeen inches. On removing the pressure, pulsation of the tumour more feeble than before it was applied. The posterior tibial artery cannot be felt, probably owing, in part, to the swelling of the foot.

This treatment was continued, with variation of the pressure according to circumstances.

April 22d. For the last three weeks he has had no pain under the ham, and the aneurismal tumour has considerably diminished, and so altered in its character as to leave little doubt that the aneurism is becoming obliterated. Pulsation in the posterior and anterior tibial cannot be felt. During the whole of this month slight pulsation could occasionally be felt, and pressure was continued, with occasional intermission.

In the middle of June, some slight pulsation with bruit still continuing, the pressure, which had been left off, was reapplied. This was continued for three weeks, when no further pulsation could be felt.

Aug. 28th. There is now little or no swelling to be perceived in the ham; no pain upon walking; no pulsation. There is a slight bruit to be heard when the leg is flexed, and the stethoscope pressed deeply into the popliteal space; but this is probably produced by the compact coagulum around the artery. Discharged.

June, 1851. Up to the present time continues perfectly well.

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30. *Account of the Dissection of a Case in which two Popliteal Aneurisms had been treated by Compression of the Femoral Arteries.* By Prescott Hewett, Assistant Surgeon St. George's Hospital. ("Proceedings" of Royal Medical Chirurgical Society, June 10, 1851.)—A man, aged thirty-eight, was admitted into St. George's Hospital in the middle of 1848, under Mr. Cutler, with an aneurismal tumour in each ham. That on the right side, completely filling this region, was compressible, but could not be emptied; that on the left, not larger than a small egg, was hard, and to a great degree apparently solid, and with much less pulsation. The tumour on the right side had only existed three months, and nothing had been done for it. From the account of the patient it appeared that the disease on the left side, which had begun about eighteen months back, had been treated by compression of the femoral artery, at the Wexford Infirmary, where the pressure had been kept up, more or less, for seventeen weeks, during which time the limb had regained its natural size,

and the tumour was reduced to its present state, from which it has never since varied, and has caused him but little inconvenience. His general health, which had begun to give way about two years and a half back, had prevented him from following his business of musical instrument-maker. When admitted into the hospital, he was pallid and apparently suffering from great debility. At a consultation of the surgeons, it was determined, under existing circumstances, that compression should first be applied to the right femoral artery, and the instrument, a ring tourniquet, was so adapted as only to lessen the circulation in the limb, and to be worn for a few hours daily. In some little time the limb was reduced in size, and the tumour became smaller and firmer, but pulsation still remained. Some six weeks after his admission, and whilst under surgical treatment, cough and expectoration, with difficulty of breathing, made their appearance. Auscultation detected nothing abnormal about the heart, but the lungs were found to be engorged at the back part. The chest symptoms went on increasing in severity, and the patient one day suddenly brought up a large quantity of arterial blood, and died shortly afterwards. The tumour in the right ham had gone on decreasing in size, and had become firmer and more solid, but some pulsation was still felt. No change had occurred in the left ham.

At the examination of the body, which took place thirty-one hours after death, the left aneurismal tumour, deeply imbedded in the popliteal space, was found lying between the joint and the artery, of the size of an egg; it was pyriform in shape, and apparently quite solid, but on cutting into it the lower half only was filled with long-standing coagula; the upper part, still presenting a cavity lined throughout by a perfectly smooth membrane continuous with the coat of the artery, merely contained some small recent clots. Of the two openings into the sac, the upper one was large, and nearly of the size of the artery; the lower one, on the contrary, was much contracted, and scarcely admitted a common-sized probe. The portion of the artery lying upon the sac was also very much contracted, but its coats were healthy, as well as those of the posterior and anterior tibial vessels, which were of their normal size. In the upper part of the popliteal, and in several parts of the femoral, there were large patches of atheroma, with three distinct aneurismal dilatations, one in the former vessel and two in the latter. The femoral artery and vein were pervious in their whole length, and the surrounding cellular tissue was not thickened. The vein and the nerve in the popliteal space were firmly adherent to the sac with a few of the fibres of the gastrocnemius muscle. The aneurism on the right side, larger than a cricket-ball, was also lying between the artery and the knee, to which it was firmly adherent. It was filled with laminated coagula, save at the back part, where there was still a small channel leading from the upper into the lower part of the vessel; this channel was rough throughout, and covered with recent fibrine. The upper opening of this channel was free and smooth; the lower one was small, and below it the artery was reduced to the size of the posterior tibial. Above the aneurism the coats of the artery were much thickened by atheroma, and here too, about an inch and a half above the tumour, was another small aneurismal dilatation. The femoral artery presented several patches of atheroma, but it was otherwise healthy, and, as well as the vein, pervious throughout its whole course: the surrounding cellular tissue was not thickened. With regard to the popliteal vein and nerve, the appearances were the same as those observed on the left side. The thoracic aorta was extensively affected with atheroma throughout a great part of its course, and it was somewhat dilated. In its arch, it presented three distinct aneurisms, one of which, the largest, was lying between the large vessels and the windpipe, into which it had burst by a small ulcerated opening, about an inch above the bronchi: the cavity of this sac was partly lined with long-standing coagula. The bronchi were filled with blood, in addition to which the lungs themselves presented several large patches of pulmonary apoplexy, and were extensively affected with emphysema. All the abdominal organs were healthy, excepting the kidneys, which were somewhat smaller than natural, rough on their surface, and with several small cysts in their structure.—*Lancet*, June 21, 1851.

31. *Treatment of Strictures of the Urethra.*—[G. J. Guthrie, Esq., in a lecture recently delivered before the Medical Society of London, draws the following conclusions in regard to the treatment of strictures of the urethra, which, as embodying the experience of this veteran and judicious surgeon, are entitled to great weight:—]

1st. That a hard and elastic, or an intractable stricture is never permanently cured by dilatation, or by the application of caustic, although it may be materially relieved by the regular periodical use of a dilating instrument.

2d. That the division of an old, hardened, or elastic stricture through the perineum is not usually followed by a permanent cure, although it is always attended by immediate relief; the disease being apt to return unless a solid sound or catheter is occasionally passed to prevent it.

3d. That the operation of dividing the perineum and urethra in such cases is sometimes attended by severe hemorrhages, by fever, and is occasionally followed by fistulous openings, giving rise to much inconvenience.

4th. That such division does, in some instances, effect a permanent cure.

5th. That the division of the urethra through the external parts should never be attempted in any portion of it anterior to the bulb, such operation not being necessary; for the narrowest stricture of the pendulous or movable part may always be divided internally with much less comparative danger than by the external incision, inasmuch as the instrument can be guided through this part by the finger and thumb of the left hand of the surgeon with a certainty almost unerring.

6th. That the stricture considered by all surgeons as the most important and difficult of cure—viz., at the termination of the bulbous portion of the urethra—may always be divided, when impassable, by a *straight* instrument, and in general more easily than by a *curved* one; the use of which is founded on the erroneous belief that the stricture is situated in the membranous part of the urethra, instead of being, as it is, anterior to it.

7th. That the division of a stricture should, if possible, be effected by an instrument passed through it, and cutting from behind forwards, rather than from before backwards, although a combination of both methods will frequently be necessary to insure success.

8th. That the division of a stricture by these means will not always insure a permanent cure if more than the mucous membrane is implicated, unless such parts be divided also.

9th. That in cases of intractable stricture, the mucous membrane, the inner layer of involuntary muscle, and the elastic tissue external to it, should be divided, when the operation is done from within, but not the outer layer of muscular fibres, which should remain as a barrier between the stream of urine and the common integuments of the external parts—an accuracy of division not always to be attained: whence, perhaps, the difficulty of effecting a permanent cure.

10th. That when a permanent cure is effected in these cases, the divided elastic wall of the urethra is not re united by a structure exactly similar to itself, but by common areolar tissue, rendering the part more dilatable under the pressure of the stream of urine; the formation of which dilatation can be aided during the progress of the cure by pressing on the divided part with the point of a solid instrument passed daily for the purpose of preventing, if possible, that contraction which always takes place during the process of cicatrization; a proceeding which cannot be advantageously adopted when the parts are divided through the perineum, lest it should encourage the formation of a fistulous opening, to which there is always a tendency.

11th. That in cases of intractable stricture accompanied by one or more fistulous openings in the perineum, in *young persons*, or of middle age, the operation through the external parts, or along the urethra, may be resorted to at the pleasure of the surgeon with an equal chance of success, provided the division of the obstruction or bank preventing the free passage of the urine be effectually divided, the *sine quâ non* of the operation.

12th. That the operation within the urethra should always be preferred in *elderly* persons, particularly if somewhat stout or fat, as less likely to create

severe constitutional disturbance; and if this operation should fail from any cause, it by no means interferes with the due performance of the other through the perineum, which in serious cases then becomes imperative, as the last resource capable of giving relief.—*Lancet*, June 7, 1851.

32. *Four Cases of Ovariotomy.*—Dr. Elkington communicated to the Birmingham Pathological Society four cases in which ovariotomy had been performed, twice successfully, and the others with a fatal result, and exhibited the specimens.

Case I.—Was a fine specimen of fibrous tumour, the size of a large cocoa-nut, which had been developed in the folds of the peritoneum, and was accompanied by ascites. The following is a brief sketch of the history of the case:—

Mary Boyce, aged 37, mother of two children, became an out-patient of the Lying-in Hospital September 10, 1845. In 1843 she discovered a tumour, the size of a large hen's egg, in the right iliac region. The swelling gradually increased, and at the time of her application she was nearly as large as a pregnant woman at her full period.

December 11. She measures from the scrobiculus cordis to the pubes twenty-eight inches; from the umbilicus to the pubes fifteen inches; around the body at the epigastrium thirty-four inches; around the body at the umbilicus fifty-three inches; and midway between the umbilicus and pubes fifty-four inches; fluctuation is very distinct; dullness on percussion over the whole lower part of the abdomen; on pressing the fingers suddenly upon the right side, the ends strike against a solid mass; her health is good, but she suffers much inconvenience from the swelling and distension; the uterus is healthy, and *can be moved freely in every direction* with the uterine sound; there is prolapsus of the posterior wall of the vagina. About the end of December, she became so much distressed by the increased size of the swelling, that it was considered necessary to tap her. Thirty quarts of ascitic fluid were drawn off. After the operation, the solid tumour was found to be *very movable, and apparently free from adhesions.* It was supposed to be a fibrous tumour of the ovary. She rapidly increased in size again, and was obliged, in about six weeks, to be tapped a second time. This afforded her relief only for a short time, and she was obliged to have recourse to the operation nearly every month. At length she suffered so much, and became so very urgent to have the tumour removed, that it was decided, in consultation with two or three medical friends, to make the attempt.

The operation was performed in July, 1846, in the presence of Mr. Southam, of Manchester, Dr. Bell Fletcher, and many other friends. An exploratory incision was first made, the fluid evacuated, and as there appeared on introducing the finger to be no adhesions in the immediate neighbourhood of the incision, it was enlarged to the extent of five or six inches, so as fully to expose the tumour and its attachments. It was then found that it had contracted adhesions at the lower part of the fundus of the bladder, to the fore-part of the fundus of the uterus, and to the parietes of the abdomen immediately above the pubes, also above and behind to the intestines. These adhesions were considered of such a serious character as to preclude the possibility of completing the operation; consequently, the wound was carefully closed, and the patient put into bed. She died, on the fourth day, of peritonitis.

This case illustrates the difficulty of diagnosis as to the presence of adhesions. It has been stated that the tumour was very movable in all directions, and that the uterus was also readily moved from side to side with the uterine sound. This is readily explained. The adhesions were very long and loose, so as not to confine or interfere with the motions of the tumour or of the uterus.

Case II.—A cast of a large ovarian tumour of the multilocular kind, removed by operation. The tumour weighed fifteen pounds.

The patient, Mrs. L., consulted me October 6th, 1847. She stated she was 46 years of age, had been married twenty-five years, and had had five children. In 1830, she first perceived a tumour in the right iliac region; it remained stationary nearly five years. She had two children after its first appearance. In 1838 she had a severe illness, which continued some months. On recovering from this illness, the tumour was much diminished in size, and remained so

for six years; it then began to increase, and during the last two years has grown rapidly. On making an examination, I found the tumour occupying the lower half of the abdomen, and extending a little above the umbilicus, which was bulging out. The tumour appeared to be divided into two portions. There is fluctuation in the tumour, but it is felt more distinctly in some parts than in others. The swelling extended from the crista of one ilium to the crista of the other, resting against the pubes, and pressing upon the bladder. Percussion dull over the whole surface of the tumour, eliciting a clear sound in the lumbar regions. The integuments were tight, and not movable over the tumour.

Examination per Vaginam.—The uterus was situated high up, the os pushed forwards, no enlargement of the uterus. The sound passed to the extent of two inches and a quarter only. The uterus movable in every direction, but not freely so. Owing to the tumour being situated so low down, and pressing against the pubes, the fundus uteri cannot be traced externally.

Diagnosis.—Ovarian multilocular tumour of the right side, probably adherent to the parietes. The uterus healthy, but its cavity shortened by the pressure of the tumour.

I saw her again in February, 1848. She was much larger, and constantly suffering from pain and sickness, which continued to harass her till the beginning of May. She was then relieved from these distressing symptoms, but suffered so much from the increase of size, and from the difficulty of breathing, that she begged earnestly to have the tumour removed. I explained to her that it was an unfavourable case for an operation, and that we should probably find adhesions which would not only increase the difficulties of the operation, but materially lessen the chances of success. She declared that she would willingly incur the risk, and so anxiously entreated us to operate, that I consented on condition that Dr. Clay of Manchester, who was about to visit Birmingham, would give me the benefit of his great experience in such cases, and should approve of the measure. Dr. C. thought there were adhesions, but that it was a case in which we should be quite justified in operating. The operation was performed July 18th, 1848, in the presence of Dr. Clay, Dr. B. Fletcher, Dr. Mackay, and several other medical friends. The tumour was connected by extensive adhesions to the parietes at the fore and lower part of the abdomen, and to the edge of the omentum, which was spread out on the upper edge of the tumour. It was very vascular, and supplied by several vessels, which passed from the lower edge of the omentum to the surface of the tumour. Several vessels were secured. Upon the anterior surface of the tumour there was a deep groove passing directly across its centre, which caused the appearance of two tumours. The patient died 36 hours after the operation, apparently from the shock.

Case III.—A large ovarian multilocular tumour, which weighed at the time of its removal nearly forty-five pounds. The following is a short history of the case:—

Mrs. Moore, Walsall, consulted me June, 1848. She says she is 31 years of age, a dressmaker, married 15 months. She began to menstruate at 17; continued regular and in good health till about two months before she was married. She was then "unwell" every week or two, and had a copious discharge. A few weeks before her marriage she had frequently slight pain in the right side. About three months after marriage she began to increase in size, and after another month the swelling increased rapidly. The swelling first appeared on the left side. She was supposed to be pregnant. She lies down on the left side. Has prolapsus uteri. Is as large as if she were in the last month of pregnancy. The tumour is very movable, irregular, and nodulated. There is indistinct fluctuation, varying in its character at different points.

Examination per Vaginam.—After replacing the uterus, which was prolapsed, there could be felt no enlargement of that organ; the uterine sound showed that the length of the cavity was natural, and that the uterus was movable in every direction. She menstruates regularly. No enlargement of the breasts. With the stethoscope no bruit to be heard in any part of the tumour.

Diagnosis.—Disease of the left ovary of the multilocular form.

She continued to increase in size. In January, 1849, she measured 45 inches

round her; at this time she began to suffer very much from the great size and dragging of the tumour. Her breathing, too, was much embarrassed.

She was tapped on the 28th of February; a quart of thick gelatinous fluid was drawn off, slowly, and with difficulty; it then ceased. A second cyst was tapped, and altogether about five gallons of fluid drawn off, but the size of the tumour did not appear to be reduced more than one-half. In a month she was as large as ever. She now became very anxious to have the tumour removed, and as it seemed to be a favourable case for extirpation, and as there appeared no chance of tapping affording more than very partial and temporary relief, it was decided that we should have recourse to ovariotomy. The operation was performed on April 3d, in the presence of Dr. Clay, of Manchester; Mr. Fletcher, Walsall; Mr. Dehane, Wolverhampton; and several other medical friends. The tumour was so very large that, although the incision was extended to ten or twelve inches, we were obliged to empty one or two of the cysts before we could remove the tumour. Fortunately there were no adhesions of importance. The pedicle was broad, and was tied by a double ligature. The operation occupied about twenty minutes. She scarcely had a bad symptom after, recovered rapidly, and was out of doors in a month. The first ligature came away on the eighteenth, and the second on the twenty-first day. Her recovery was perfect, and she has continued quite well.

In April last (*i. e.* 1851) she was confined of a fine healthy girl; had an easy labour, and a rapid recovery.

Case IV.—The next was a beautiful specimen of fibrous tumour of the left ovary, weighing twelve pounds, removed by Mr. Day, of Walsall, from whose report the following short sketch has been taken:—

Mrs. Howard, aged 42, married twenty-one years, has had nine children. About two years and a half since she found an enlargement in the left hypochondrium, which gave her no uneasiness. She consulted Mr. Day about six months afterwards, who found a hard tumour the size of a cream jug, readily movable in every direction, and attached, as he imagined, by a thin pedicle to the left ovary. She afterwards became pregnant, and had a favourable labour. After delivery, Mr. Day made an examination, and found that the tumour was double the size it was before pregnancy, but still movable in every direction, and apparently quite free from uterine adhesion. She suckled her child twelve months. She gradually increased in size. In June, 1850, her health began to suffer, and she was obliged to wean the child. The swelling increased to such an extent that it became necessary to tap her on August 30th, when three gallons of fluid were drawn off. She refilled rapidly, and in one month was larger than before the operation. At this time Mr. Day says, "Her situation was truly deplorable, being unable to remain in either the upright or recumbent position without excruciating misery, from dyspnœa and severe pain in the region of the liver and heart. But a very small quantity of urine was passed in the twenty-four hours. Diarrhœa was a distressing and constant symptom. She expressed herself suffering intolerable agony, and prayed for the operation to be performed, stating that otherwise she felt sure she must speedily die. Mr. Day operated September 26, 1850. He first drew off five gallons of ascitic fluid with the trocar; then passed a director through the opening made by the trocar, and laid open the abdominal cavity to the extent of five inches, and having ascertained that the tumour was free from adhesions, he continued the incision upwards, making use of his fingers instead of a director, to within a short distance of the ensiform cartilage. He also extended the incision below nearly to the pubes. The tumour being then completely brought into view, was found to be attached by a broad but thin pedicle, about three inches in width, to the left broad ligament of the uterus. The pedicle was secured by a double ligature, and divided close to the tumour. The operation was concluded and the patient in bed in fifteen minutes. The first ligature came away on the twelfth, and the second was removed on the fifteenth day. It was followed by a small quantity of discharge, which had the appearance and smell of feculent matter, but the discharge soon ceased. Her recovery was slow and for some time doubtful. She suffered much from diarrhœa, sickness, and an aphthous con-

dition of the mouth and fauces. She was able to walk in the garden on the 31st of October, and from that time gradually recovered her health and strength. *Provincial Medical and Surgical Journal*, Aug. 6th, 1851.

33. *Case of Ovariotomy successfully performed.* By John Beales, M.R.C.S. ("Proceedings" of Royal Med. and Chirurg. Soc., June 24, 1851).—In the early part of September, 1850, the author was consulted by a woman, aged thirty, unmarried, for an enlargement of her abdomen, which she had first noticed on the left side in the previous December. Latterly she had suffered from loss of appetite, loss of strength, and wasting of the legs and arms. The author found an ovarian tumour, hard to the touch, in the left iliac region and left hypochondrium, but soft and fluctuating on the opposite side, evidently in two distinct sacs, movable, and free from tenderness; and he was induced to recommend its removal. The operation was performed on the 4th of December, under the influence of chloroform. The incision was ten inches in length, extending from the scrobiculus to the pubes. Two cysts were punctured, and their contents removed, before the tumour could be removed from its cavity; the pedicle was tied by means of a double ligature passed through its base, and the tumour was then separated as near as possible to it. The uterus and right ovary were healthy. Everything went on favourably after the operation. On the 15th she was able to walk about the room. On the 25th the ligature came away. The tumour was three feet two inches in its largest circumference, and two feet one and a half inch in its smallest; it weighed twenty-five pounds; it was multilocular, marked on the surface by bands of white fibrous tissue corresponding with the septa of the cysts. The author then gives a description of the walls of the cysts. The cysts varied very much in size, and in the density and tenacity of their contents; in the smaller ones the fluid was clearer and thinner. The average specific gravity was 1010, but the fluid contained a very large quantity of albumen. The total quantity of fluid was from twenty-one to twenty-three pints.

[A full detail of this case has been published in the *Prov. Med. and Surg. Journ.*, July 23d, 1851.]

34. *An Ovary removed by mistake for a Labial Cyst.*—At one of the late meetings of the Surgical Society of Paris, M. Guersant, Chief Surgeon to the Hospital for Children, brought forward a case in which an error in diagnosis was committed, and which ended fatally. The patient was a little girl, eleven years of age, who, ever since she was one year old, had in the left labium a small painless tumour. Of late, however, this tumour had become troublesome, and interfered with walking. When examined, it was found of the size of a small walnut, situated in the thickness of the labium, and extremely movable, so much so, that it could be pushed downwards to the most posterior portion of the labium, and upwards as far as the external ring. It was, however, impossible to press the tumour into the ring, which latter presented no abnormal dilatation. The tumour had a great deal of analogy with a testicle. M. Guersant looked upon it as a cyst, and resolved to remove it. A longitudinal incision brought into view a membrane much resembling tunica vaginalis, and having the aspect of the peritoneum. Through this membrane an ovoid body was observed, which was no other than the ovary; it was attached to a pedicle formed by the Fallopian tube, which ran into the abdomen through the inguinal canal. M. Guersant placed a ligature on the pedicle, and cut out the ovary. Acute peritonitis occurred the very next day, and the patient died on the third day after the operation. M. Morel mentioned during the discussion that he had had an opportunity of seeing a tumour of the same kind in the labium, and formed by the ovary; no modification of size or sensibility was noticed to occur at the menstrual period. M. Lenoir stated that Pott has related a case in which the two ovaries were removed by an error in circumstances analogous to those of M. Guersant's patient.—*Prov. Med. and Surg. Journ.*, Aug. 6th, 1851.

35. *Serious Hemorrhage following Excision of the Tonsils.*—The following instructive case forms the subject of a memoir by M. Chaissaignac (*Archives Générales*, Mai).

The patient, a female, aged 21, was the subject of enlarged tonsils, one of which had been removed eight days before by M. Sandouville. The operation had been quite successful in its immediate results. The author was summoned in consequence of an uncontrollable spitting of blood. On looking into the throat for the purpose of discovering the exact seat of the hemorrhage, M. Chaissaignac found that it proceeded from the bottom of a concavity left by the excised tonsil.

The patient had been for some time constantly spitting blood, and had also vomited a large quantity. The pulse was small, the extremities cold, and altogether she was in imminent danger. Many means had been adopted without success, such as ice externally, and styptics of various kinds internally.

The first proceeding adopted by the author was to make pressure on the bleeding surface with lint dipped in lemon-juice. This controlled the bleeding for a time, but after he had left it returned with equal intensity. He now intended to apply the actual cautery, but before resorting to this it occurred to him to try keeping up pressure on the tonsils with lumps of ice. This was done with the aid of forceps, and was completely and permanently successful.—*Prov. Med. and Surg. Journ.*, July 23, 1851.

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36. *Diaphragmatic Hernia of the Stomach, Spleen, and Colon.*—This curious case is published in the *Revue Médico-Chirurgicale*, Juin, 1851. The patient, aged 59, was admitted into the Hôtel Dieu of Nantes, in June, 1850, complaining of pain in the epigastric region, constant vomiting, cough, and purulent expectoration. He died at the end of three weeks. After death the stomach, omentum, spleen, and a portion of the colon, were found in the thorax, having passed through an opening to the left of the pillars of the diaphragm; the opening had smooth edges, and did not exhibit any appearance of laceration. There was no trace of inflammation, either in vascularity or adhesion, so that the inference was that the hernia was congenital, and that the vomiting towards the close of life was in some way connected with the state of the lungs, which were full of phthisical excavations.

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37. *Excision of the Astragalus, successfully performed for Fracture and Dislocation of that Bone.*—Although the history of fracture with dislocation of the astragalus, requiring the extraction of the bone, has been succinctly written, there are comparatively but few cases on record, so that the following instance by M. Thore (*Archiv. Générales*, Mai) is not without value:—

A young man, working in a stone quarry, had his right foot crushed by a fall of stones and earth. When first visited, the foot and leg were enormously swollen, so that it was difficult to ascertain the nature of the injury. The foot was, therefore, enveloped in poultices. Five days subsequently a gangrenous odour was perceptible, and bullæ appeared filled with fetid sanies. At the external aspect of the foot the skin was sloughing, and a portion of the astragalus projected, and was movable in all directions.

Two days after the author decided to extract the bone. After enlarging the wound, the bone was seized in strong forceps, and the ligamentous structures being divided it was readily extracted, leaving a large and deep excavation.

The report five days after the operation is, that the appearance of the limb is much improved, the gangrene diminishing, and cicatrization commencing in certain portions of the wound. Several splinters were extracted, and phlegmonous erysipelas ensued, requiring several incisions for the purpose of evacuating pus; but on the subsidence of this the patient made rapid progress.

An examination of the limb was made at the expiration of the year, when the following were the appearances: Above and immediately behind the external malleolus there was a deep semicircular cicatrix. There was no trace of callus either on the tibia or fibula. The external malleolus is more prominent than the other. The concavity of the sole of the foot was little changed. The foot, which was for a long time movable in every direction, was at this time quite anchylosed. The patient could walk and even dance without pain, and with facility.

MIDWIFERY.

38. *On Obstetric Practice of the Vienna Lying-in Hospital.*—Dr. Arneth read the following interesting communication to the Edinburgh Obstetrical Society at the meeting April 9th, 1851:—

I have now been connected for three years with the Lying-in Hospital in Vienna, as assistant to one of the Professors of Midwifery in that institution, in whose wards more than 10,000 women have been confined during that time. In the other midwifery clinique, in the same hospital, the number of labours during the same period was still greater; and, through the kindness of my colleagues, I had an opportunity of observing all the important and interesting cases which occurred in their department.

In a woman affected with *abnormal vertical inclination of the pelvis*, there occurred a *central laceration of the perineum* during labour, and through which the child was born. The fourchette anteriorly, and the anus posteriorly, were uninjured.

In the cases of two women, there occurred *prolapsus* of the womb at the full term of pregnancy—in the one complete, in the other incomplete. In both cases reposition of the mass was effected, and labour soon supervened.

There were forty cases of face presentation, and in these thirty-five children were born alive; but of these last, four died in the first days after birth. Two of the mothers died. In no case was instrumental interference resorted to; and for fifty years such has been the practice in this hospital.

Twice (once after a very easy forceps case, and once after a natural confinement) a small part of the os uteri, covered with exudation, was expelled with the discharges. In the second case alluded to, the woman was examined on the ninth day after confinement, and there was found a sharp edge in the os uteri, indicative of the spot where the portion had separated. Both mothers did well.

A patient, in whom the portio vaginalis had been amputated two years previously, became pregnant. The os uteri did not open spontaneously at all when labour came on. Incisions were made in different directions, and shortly afterwards delivery took place. The mother sank ten hours after birth. Post-mortem examination showed old adhesions of the uterine peritoneum.

Incision of the cervix uteri was required only in a single other case, one of carcinoma of the cervix. In this case the mother did well.

Two cases of carcinoma uteri occurred. Living children were born, and the mothers made very good recoveries.

Cæsarian section was never performed, except in cases where we believed the narrowness of the brim of the pelvis to be so great as to render it impossible to drag the perforated child's head through it with safety to the mother. So strictly has this rule been kept, that out of somewhat upwards of 200,000 confinements that have occurred in the Lying-in Hospital of Vienna, between the years 1789 and 1851, the Cæsarian section has only five times been resorted to. All the five mothers died. The children survived the operation, and of some of them there were accounts some years afterwards. Professor Dubois has informed me that he had performed the operation twelve times without having had any successful case; nor is he aware of any practitioner in Paris having been more fortunate. Professor Stoltz, of Strasburgh, lately informed me that he had operated four times out of six with good success—nay, in one case, he was even fortunate enough to see a mother twice surviving this dreadful operation. Everywhere, on the Continent, it is an established rule to perform Cæsarian section in every case of a mother dying pregnant in the seventh month, or later. The essay of Bouchut, which has lately been crowned with the prize of the French Academy, proves that with the last pulsation of her heart the mother dies, and that, consequently, the operation of Cæsarian section may be performed immediately afterwards. In four cases, children were saved by the operation in the Vienna Lying-in Hospital. Two of the mothers died of phthisis, one of eclampsia, one of gangrenous inflammation of the cellular tissue of the neck.

It is a curious fact that—whilst in all cases of midwifery we are bound most carefully to save the lives both of mother and child, and, when that becomes impossible, to do everything in our power for the benefit of the one life we hope to save; that in cases of mortal wounds inflicted upon the mother, or of her being in articulo mortis *for a considerable time* (where the mother is unconscious, and where there is not the least hope to see her restored)—accoucheurs too often delay the operation till unfortunately the child in utero is dead. We are of opinion that, in such cases, and more particularly if we ascertain that the child's pulse is becoming slower and weaker, the Cæsarian operation ought immediately to be performed.

A very frequent cause of the child's death during labour is prolapsus of the funis. We are of opinion that, under certain conditions, the following mode of management has been, generally speaking, much neglected; we mean the artificial replacement of the funis. When the head is presenting, and still movable on the brim, and the os fully dilated, the best plan is to push the funis back, and lay it down in the hollow of the neck of the child. The registers of the Vienna Lying-in Hospital contain forty-three cases of this reposition of the funis. In these, thirty-eight children were born living; and it is only fair to state that, in three out of the five cases of failure, there was scarcely any pulsation in the cord at the time when it was pushed back; and in one other case where the operation had been performed, the labour proved so slow that the forceps were applied for inertia uteri. No hospital report, as far as I know, affords better results of the treatment of a large number of cases of prolapsus of the funis.

The whole prolapsed loop of the funis is taken in the hand, and, pushing the child's head a little back, we lodge it in the hollow formed by the child's neck. It is not necessary to say that the funis is in this way protected on one side by our hand, and on the other by the hollow of the neck, in which it is allowed to lie. There is no reason to fear the occurrence of any injury from compression of the child's head. This operation does no injury to the mother; and, by exciting the uterus to fresh contractions, it sometimes renders the confinement much shorter.

In the cases which have come under my care, the funis, after being replaced, has prolapsed again in only one instance. It was again replaced with complete success. I know, however, the particulars of one case of frontal presentation, where the funis so tightly embraced the forehead of the child that reposition was found impossible.

Sometimes, when it is impossible to feel any pulsation in the prolapsed funis, the child may be still alive. Four such cases came under my notice, where the funis had been pulseless for so long as half an hour, and the children were born living. As there is rarely time, in such cases, to make use of auscultation, my opinion is that, in all cases fit for reposition, it should be performed, unless the funis be very cold and discoloured, or other decided symptoms of the child's death be present.

In the 6608 cases that were under my care, operative interference was resorted to 95 times—that is, nearly once in every 70 cases; 11 of the 95 mothers died —that is to say, 1 out of every 9.

62 children out of the 95 were born living, and 49 survived the ninth day after their birth—that is to say, the day when they used to be dismissed from the institution; so that we lost sight of them after that time.

Turning was resorted to 44 times, or once in every 150 cases; the forceps were used 45 times, or once in every 146 cases; the child's head was perforated 4 times, or once in every 1652 cases. Premature labour was induced twice.

In the post-mortem examinations of some women who died of spontaneous rupture of the uterus, we are at once struck with the immense increase of the size of the fundus uteri, whilst there does not appear to be a similar state of the cervix. It is highly probable that, in such cases, the rupture is brought on by the immense force exercised by this hypertrophied part of the fundus, and which the cervix is unable to resist. The direction of the laceration laterally speaks for this view. The occurrence of rupture is much favoured if the texture of the mucous membrane has been softened by a previous inflammation.

In one case of rupture, the peritoneum alone was affected. The laceration was situated over the fundus of the uterus, and was several inches in length.

One case occurred, in which a woman complained so much of violent burning pains in the abdomen, and was so affected with dyspnœa, that the use of the forceps was deemed necessary. The operation was easily performed. The peculiar characters of the dyspnœa, the complete arrestment of the action of the diaphragm, and the similarity of this symptom to what had been witnessed in a previous case of rupture of the uterus, led us at once to diagnose this as also a case of rupture. For some days after delivery these symptoms almost disappeared, and the pulse improved in character; only a minor degree of asthma persisted. On the seventh day after delivery she commenced to sink, and died suddenly. The uterus was found ruptured at the cervix, but the peritoneum was entire.

There were thirteen cases of eclampsia; four of the mothers died, eleven children were born living. Only one breech presentation occurred; it was in a twin case. All the other children presented with the head. In six cases we resorted to the forceps; the other cases were terminated without artificial interference. We cannot agree with the opinion of Ramsbotham, that the disease occurs most frequently in hot seasons, as there was only one case in May, two in April, four in February, one in December, two in November, two in October, and one towards the end of September. Most of the children (ten) were males; the mothers were, generally speaking, young females, pregnant for the first time. In the post-mortem examinations no morbid symptoms were discovered in the brain. Our treatment consisted in bloodletting, cold water dressings on the head, and the use of tartar emetic. It is worth notice, that very generally after the coma that follows the convulsions, and lasts occasionally for many days, there is to be observed a state of forgetfulness, being sometimes the only remainder of this dreadful disease. I repeatedly saw women who had not the least desire of denying their being pregnant, who could not recollect at all the particulars of their confinement—nay, even of their having been pregnant. This circumstance is most interesting also in a medico-legal point of view.

In the following case chloroform proved very useful. A recently confined woman, who, as she told us, had never suffered from spasms of any kind, complained, a few days after natural labour, of fever and pains in the abdomen. These symptoms, however, subsided in a short time. A few days afterwards she suddenly began to howl like a dog, to contract her face in a most ridiculous manner, and to be exceedingly restless. As often as we put some chloroform under her nose, she regained her consciousness, and, when asked, complained of no pains at all; but the aforesaid symptoms reappeared immediately when the chloroform was removed. These symptoms lasted for three hours, when we put her, by means of chloroform, into profound sleep; at once all the symptoms yielded, but re-appeared in a few minutes after she awoke. I applied chloroform for a second time, and allowed her to remain under its influence for about one hour and a half. After that time she remained entirely free from the symptoms of threatened mania.

From the few cases where chloroform was used in our midwifery practice, and these were all cases of long-lasting and exhausting operations, it would appear that this medicine has a particularly soothing influence on the vascular system; for in all these cases the heart's pulsations were, after delivery, scarcely quicker than in a healthy person; and I may here observe that, in the Vienna Hospital for the last two years, nearly all surgical cases have been anæsthetized when operated upon.

In cases of hemorrhage after delivery, if there are no clots or portions of the afterbirth in the womb, contractions are, if possible, excited first of all by frictions. In the very rare cases where the frictions have no effect, we resort to cold water dressings externally; and if these prove inefficient, we inject cold water into the uterus. This treatment has been so successful that, out of more than 20,000 cases that occurred in the clinique since 1833, there are only two cases on record of women dying of post-partum hemorrhage; that is to say, one of a woman where assistance was only resorted to when she was already mori-

bund, and the second a female taken with small-pox, where every means proved inefficient.

In the period extending from 15th October 1847 to the end of October 1848, only one out of 128 mothers died. The mortality increased in November, and still more in December, when one mother died out of every fifteen delivered.

These unfavourable results were undoubtedly caused by the political events of that period. It is not necessary to state how depressed in the mind the most of the women confided to our care must have been at a time when their friends, fathers, and brethren fought either in the ranks of the rioters or in those of the soldiery. But, moreover, one of the wells that supplied some of the yards of the large hospital with water was destroyed by the troops. The consequence was that that cleanliness could less effectually be looked for which we may boast is maintained at other times in our hospitals. The supplies of straw, coverlets, and so on, were also intercepted.

Towards the end of October, when the stores were almost exhausted, and no fresh provisions arrived, many women were confined, and the consequent disease became more fatal in December.

The first cases of puerperal fever that came under our care, showed in their beginning no other symptoms than sores near the fourchette that extended widely into the vagina, and over the perineum. They appeared about the sixth day after confinement, were uneven, of a grayish colour, and covered with a corroding matter; they bled very seldom. Sometimes they healed by granulation, but this went on very slowly, the patients meantime becoming extremely emaciated. Other cases proved fatal, the post-mortem examinations showing inflammation of the mucous membrane of the uterus and of the peritoneum, and, more generally still, of phlebitis.

In the subsequent course of this epidemic of puerperal fever, peritonitis, at other times peritonitis combined with pleuritis, were the more general symptoms. In the course of three days I had the sad opportunity of seeing two cases of phlebitis, ending in the destruction of the eyeball by metastatic purulent deposits. In the first case, only two hours, in the second, eight hours, elapsed between the first symptoms of disease appearing in the eye, and the lamentable catastrophe. It was highly interesting to observe how entirely puerperal fever ceased in our wards after cholera made its appearance. During the month of May and the first days of June, eleven mothers died of puerperal fever; on the 10th of June we saw the first patient under cholera, and had occasionally cases of it till the 11th of August. During this whole period we had only very few patients complaining of the slighter puerperal symptoms, in no case ending fatally. Almost immediately after the disappearance of cholera, the cases of puerperal fever became somewhat more frequent, and decidedly more dangerous.

Prof. Kiwisch, late of Wurzburg, now of Prague, has recommended a new method of inducing premature labour, which, being decidedly the least troublesome and the least dangerous to the mother, has now been repeatedly resorted to, both by Professor Kiwisch and the leading men of the Vienna midwifery department. This means consists in the use of a douche of tepid water falling from a height of about ten feet, the stream being allowed to impinge upon the os uteri, and thus to open it in a short time. This plan is peculiarly adapted for cases of contraction of the pelvis, where you have sufficient time to use any advisable method to bring on premature labour. It is much less serviceable in cases of urgency, as it is quite impossible to state beforehand how many applications of the douche will be necessary for that purpose. The average hitherto has been about ten applications; we used to apply them twice a-day for a quarter of an hour each day.—*Monthly Journal Med. Sci.*, July 1851.

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39. *Method of inducing Premature Labour.*—Dr. Moir made the following statement to the Edinburgh Obstetrical Society, as to a mode of *inducing premature labour*, which had been first adopted, he believed, by the late Dr. Hamilton, and which Dr. Moir and his father had almost invariably practiced, with very considerable success. Dr. H., conceiving that many children were in these cases

lost by the pressure on the head consequent on the premature rupture of the membrane, then the usual method of inducing premature labour, tried the plan of gently opening and dilating the os uteri with the finger, and, if the pelvis was very deep, cautiously using some rounded blunt instrument, such as a large-sized male bougie, with the view of separating the membranes from the surface of the uterus for two or three inches up from the os uteri all round; this being repeated every second or third day, according to circumstances. The consequence of this procedure was that in eight or ten days at the most the os uteri became considerably opened and relaxed, the membranes protruding somewhat; so that, when labour came on, everything proceeded very much as in a favourable natural labour. If, however, labour did not come on in eight or ten days, he took a male catheter, from which the point had been cut off, and introduced it for some four or five inches along the posterior surface of the uterus, between it and the membranes; then turned the point inwards towards the membranes, and then pushed forward to the extent of the eighth or tenth of an inch the point of a silver wire which had been previously lying within the catheter to its very point. With this he penetrated the membranes, and allowed two or three tablespoonfuls to escape along the catheter, and then withdrew it. The pressure of the uterus on the puncture prevented further escape of the water; and in every case but one, where Dr. M. had to repeat this puncture, labour came on within thirty-six hours—the membranes at the os uteri remaining entire, and assisting to dilate the os uteri. Dr. H. had thus operated between forty and fifty times for deficiency of space in pelvis, and all the children except four had been born alive.

Dr. M. and his father had performed it above twenty times, and, though not with so much success to the infant as Dr. H., yet all the parents had recovered perfectly, and in almost every case when the child was lost, it arose from its being still too large for the aperture through which it had to pass; and even then, these cases had this advantage, that the mother suffered less than if she had been allowed to go on to the full time, and recovered rapidly.—*Ibid.*

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40. *Induction of Premature Labour.*—Dr. Simpson observed, in a discussion at the Edinburgh Obstetrical Society, in relation to the induction of premature labour, that for many years past he had followed the plan of dilating the os uteri, and perhaps, he might add, separating the membranes also, by the introduction of sponge tents. He thought it a more certain, more efficient, and more safe mode, than any of the others that were used. He had now employed it in numerous cases, without ever finding it once to fail; always with perfect success in regard to the mother, and in a large proportion of cases with safety as regarded the child. It had the advantage, like Dr. Hamilton's plan, of not rupturing the membranes; and thus allowed the child to be protected by the presence of the liquor amnii during the process of labour. It also had other advantages. It was, Dr. S. believed, more easy of employment than almost any other method. When adopted, and when the os uteri was dilated by a succession of sponge tents, the first stage of labour (that is, the dilatation of the os uteri) was really in many cases to a considerable extent accomplished before labour itself began; and consequently the child was saved from the pressure, &c., incidental to the earlier and sometimes protracted part of the first stage. It was, as a general rule, speedier in its operation than any other plan proposed. Dr. Arneth had seen with Dr. Simpson a case in which Dr. S. employed it. In this instance labour pains came on within two hours after the first tent was introduced. In the same patient, in her last confinement, when premature labour was also brought on, the whole process of delivery was over in twelve hours after the induction of premature labour was commenced by the introduction of the first sponge. Latterly, in using sponge tents for this purpose, Dr. Simpson had always begun by introducing a pretty large tent, one at least as thick as the little finger; and (sometimes without withdrawing the first) he has introduced a larger and larger size every six or eight hours. Usually, he requests tepid water to be thrown up into the vagina every hour or so after the first tent has been introduced. This of course is with the view of supplying a sufficient

quantity of fluid to expand the compressed sponge. Dr. Simpson had tried in one case lately, the plan mentioned by Dr. Arneth, of injecting tepid water. It was in an instance where the patient had repeatedly found the child to die a short time after quickening, and retained it for six or eight weeks subsequently. During her last pregnancy, the same occurrence took place with the same symptoms. A few weeks having elapsed, she threw up tepid water, at Dr. Simpson's request, twice a-day, with a view of bringing off the dead fœtus. After nine douches, applied night and morning with a common syringe, expulsive pains came on, and a dead and shrivelled fœtus and placenta were expelled. As to the mode in which the injection of tepid water acted in inducing premature labour, Dr. Simpson had some doubts whether Kiwisch's explanation of it, that it led to relaxation of the soft parts by the imbibition of the water, was a true explanation. He had a belief that, when a douche of tepid water was strongly thrown into the vagina, it did not always escape readily out of the vaginal orifice, but accumulated in that canal, and by its accumulation and distension opened up the cervix uteri, and ultimately even separated the membranes. If it acted by mere imbibition, then Dr. Simpson imagined that it might be of use in midwifery in a way not thought of by Kiwisch. If we had any means of relaxing the soft structures of the mother for two or three days before delivery, we would be enabled to curtail the duration of labour, and consequently to diminish its mortality. We might in this way, for example, make first labours as speedy and hence as safe as future ones, which at present they by no means are. In Great Britain, if all the children born for one year were girls and no boys, Dr. Simpson had elsewhere attempted to show that six or seven thousand infantile and maternal lives would be preserved. And if we could make the birth of boys as expeditious as that of girls, a great number of lives would be saved annually. The question recurs, would douching the vagina for two or three days before delivery, produce such a relaxation of the maternal passages as to facilitate labour to the requisite extent?—*Ibid.*

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41. *Epidemics of Puerperal Fever.*—In an extremely interesting discussion which took place at the meeting of the Edinburgh Medico-Chirurgical Society, April 16th last, on the reading of a paper by Dr. Arneth on a cause of puerperal fever at the Lying-in Hospital of Vienna, Dr. Moir made some remarks on a few of the epidemics of puerperal fever in hospital and private practice, as detailed in the late Dr. Hamilton's lectures, and on some facts tending to prove the contagious nature of that disease.

1. During 1814 and part of 1815, nine women had puerperal fever in the Edinburgh Lying-in Hospital, and only one recovered.

2. In 1830, between 18th September and 5th November, out of forty-eight patients delivered, eighteen had the disease in a well-marked form, of whom sixteen died; the two who recovered were the last cases, and insisted upon being taken home to most miserable apartments. They both slowly recovered—one after the discharge of a considerable quantity of dark offensive matter per vaginam.

3. During the above epidemic in 1814-15, three cases occurred in the private practice of the matron of the hospital, who at that time was much employed as a midwife.

4. In Dumfries and neighbourhood, during 1813, twenty-seven individuals in the better ranks died from this affection in about six weeks; and only one affected with it recovered—a discharge of pus from the umbilicus having in her occurred about two months after delivery.

5. In the summer and autumn of 1823, Dr. Kellie had a number of cases in Leith and its vicinity. The first cases occurred at Inveresk, early in May; and the fifteen patients whom he delivered in succession afterwards, or sixteen in all, were affected with the disease, and all died.

6. Dr. Hamilton saw one of these cases in consultation on the 6th May. On the 8th, he delivered a lady of her third child in Gayfield Square; she had the disease, and died on the eighth day.

7. In May and end of June of the same year, Dr. H. saw two cases with the late Dr. Beilby, one of whom recovered. On the 7th July, he delivered a lady of

her first child, after an easy labour. On the fourth day she was seized with the disease, was bled copiously more than once, and sunk next day.

8. Dr. M. mentioned several instances of individual pupils of the hospital having had a succession of cases in various quarters of the town; while other pupils, as extensively engaged at the same time in midwifery practice, and in the same localities, had none.

9. Dr. M. read the copy of a letter, sent in Feb. 1824 to Dr. H. by a Dr. Reid, an old pupil, in which he says: "That puerperal fever is contagious, I think I shall be able to adduce some tolerably good proofs. In 1817 I visited Ireland, and attended gratuitously a number of poor. The third woman I attended in labour was attacked with puerperal fever; and from that time not one escaped it who came under my care. After my return to London in the autumn, I was called to a labour, on which occasion I happened to be dressed in some of the clothes I had worn in Ireland; and that woman was seized with the fever, as were two others, whom I attended a few days subsequently. On a voyage to New South Wales, several weeks afterwards, in the Atlantic Ocean, a soldier's wife was taken in labour, and, being badly provided with necessaries for the occasion, I gave her some old sheets, and a piece of garment, which had been packed in one of my trunks at the time I was attending the puerperal cases in London; and she was attacked with the fever two hours after delivery. Four other women were confined on the voyage, and all had the disease."

After commenting upon the contagious nature of this fearful disease, as indicated by the preceding facts, Dr. M. stated that it was mentioned in Dr. Hamilton's lectures, that when puerperal fever prevailed in the lying-in ward of the Royal Infirmary, all the sores in the surgeon's ward, which was on the same floor, were in a very bad condition; and erysipelas followed every operation, however trifling; and that Dr. Kellie had also observed that, during his attendance on the cases occurring in his practice in 1823, there was inflammation of one or more veins of the lower extremities, accompanied in some with erysipelatous efflorescence on the surface. From which facts Dr. H. had, at one time, concluded that there was a strong connection between erysipelas and puerperal fever, though he changed this opinion in after life from not finding them always to go together.

Dr. M. next related at length the particulars of three cases which had occurred lately in his own practice, and which in several ways deserved the consideration of those engaged in obstetric practice. He delivered a patient, A., on the 8th February, at midnight; another, B., early on the morning of the 9th; and on the 10th, in the afternoon, a third, C. The infant of A. having died early on the morning of the 10th, and, it being wished to ascertain the cause of death, Dr. M. opened the body that evening, some time *after* having delivered C., and, much to his surprise, found the cavity of the right pleura so completely filled with a sero-purulent effusion, that no air had penetrated that lung, which was otherwise quite healthy. He ordered the nurse not to approach his patient till she had changed her clothes, and washed carefully with chloride of lime; and he did the same. On the morning of the 14th this nurse was found feverish, and suffering considerable pain in one arm, from inflammation of the lymphatics. It was ascertained that she had pricked her finger a short time previous to the opening of the baby, some of the matter from which had doubtless been absorbed, and given rise to the above symptoms. Dr. M. afterwards visited A. and B., about ten o'clock; and did not see C. till next day. On the evening of the 12th, A. had slight rigors; on the 13th and 14th, pulse was very rapid; but on the 15th fell to 80, and she seemed altogether better; but that evening rigors again supervened; the pulse became rapid, and skin variable. Erysipelatous efflorescence appeared soon after on the left leg. Tympanites also supervened some days before death; but there was from the first little or no pain or uneasiness of abdomen, or of any part of the body, except the knee of the affected leg, and the back of the shoulder and right side for three or four days before death, which occurred on the 24th. The appearances on dissection were unusual, there being no trace of peritoneal inflammation or its consequences, and no apparent affection of the uterus, its appendages, or vessels, except redness of one of the Fallopian tubes, and in two small spots a substance, of a whitish colour,

apparently like pus, where the placenta seemed to have been attached. The left knee-joint was distended with sero-purulent fluid. The muscles and cellular membrane on the back of the shoulder and right thorax were infiltrated with a dark sanious fluid. The large veins were distended with blood, and their walls thin and almost transparent, but their internal coat healthy. The blood in the great veins very fluid, watery, and uncoagulated; and, when examined microscopically, containing white corpuscles in greater numbers than usual.—B. was seized, early on the 13th, with rigor and violent pain of abdomen, which continued for nearly a fortnight; during which time effusion took place into one pleura, and soon after it into the other; but, though exceedingly prostrated and worn out, she is still (about a month from the attack) alive, and it is hoped may recover.—C. was also seized with rigor early on the 13th; pain confined to the uterus, which was hard and painful on pressure; was leeched over it, and so far relieved that on the 15th her pulse was in the morning down to 90, and soon after mid-day to 72; yet the symptoms became aggravated, and she died on the 19th.

Dr. M. called the attention of the members to the great difference of the local symptoms in all the three cases; the pain in C. being chiefly confined to the uterus; in B. to the peritoneum generally, the whole abdomen being exquisitely tender to the touch; while in A. there was neither pain of the abdomen nor of its contents during life, nor morbid appearances after death, with the slight exception already mentioned. And he lastly requested their particular attention to the probable exciting cause in the three cases, or to the manner in which the disease had been communicated; because, believing, as he did, in its contagious nature, it appeared to him a question of great importance to trace out the cause. At first sight, it might appear that the most probable cause was the communication of some morbid matter from the opening of the fœtus, it being admitted that the application of the inflammatory products effused on mucous or serous surfaces may communicate the disease, as amply proved by Dr. Arneth's paper, as already read; but, on more particular attention to the subject, there were several great difficulties in admitting this as the cause in these cases, as all the patients had been delivered *prior* to the opening of the body; as the hands were well cleaned with chloride of lime, and the clothes changed, before *two* of the patients were visited that night, and as the *third* was not seen till next day, and as in none was any vaginal examination made by Dr. M. *subsequent* to the sectio. Dr. M. then submitted what to him appeared, on a careful review of all the cases, as the cause. He believed that there must have been some peculiar condition of A.'s system, which had been not only the cause of the disease discovered in her infant, but also of the subsequent symptoms in her own case, and which had communicated to Dr. M. some virus or *materies morbi*, which had been the means of inducing the disease in the other two patients. In support of this, there was: 1st, the state of the infant, which was well grown, and in every way healthy, with the exception of the sero-purulent effusion into the right pleura; and that this was dependent on some morbid condition of the mother, was borne out by there being, 2d, for some days previous to labour coming on, a feeling of occasional faintness and of listlessness, very foreign to her usual habits; 3d, by the difference in the nature of the labour, which on former occasions was generally very rapid, and without premonitory symptoms—whereas, on the present occasion, besides supervening a fortnight before her full period, there was a threatening of labour for four days, during the whole of which time Dr. M. was frequently in attendance on his patient, often for a considerable period at a time; 4th, by the scanty or almost total want of secretion of milk, whereas on all previous occasions it was very abundant; 5th, by the slight rigors, which in attacks of puerperal fever are generally more severe; 6th, by the total want of the usual local pain in the regions of the uterus, its appendages, or the peritoneum; and 7th, the appearances after death. From the preceding facts, Dr. M. inferred that the disease in this case, A., was the result more of some primary morbid state of the system than connected with any local cause, such as the application of morbid matter to the vagina; that, moreover, this condition had existed prior to delivery, as indicated by the state of the infant, and the symptoms both prior

and subsequent to delivery; and lastly, that, as he had been in such close attendance on this patient for four days, he most probably was the means of conveying some infectious matter to B. and C., the former of whom was delivered about two hours after he left A.'s house subsequent to her delivery, and the latter on the next day.—*Ibid.*

42. *On the Contagiousness of Puerperal Fever.*—Dr. Simpson made the following interesting observations on this subject, in a discussion at the Edinburgh Obstetrical Society. He expressed a similar opinion of Dr. Moir's series of cases to what Dr. Moir himself had given—viz. that the original focus of contagion in them was to be traced to the diseased blood and tissues of the mother who was first delivered and first attacked—that her blood had affected the infant which she carried within her—and that probably the vaginal secretions and discharges from the said patient during labour had unhappily formed the virus or material which had been unwittingly carried by Dr. Moir, so as to affect his other patients. It was only by careful and searching analysis of cases of puerperal fever, like Dr. Moir's, when they did occur, that we could hope ultimately to arrive at a knowledge of all the various ways and means in which the disease may originate or be spread, and consequently of all the different means which may be adopted to prevent its spreading. Dr. Hill of Leuchars has described one instance which was interesting in this respect, that, as in Dr. Moir's, both the mother and the child seemed affected before delivery. A carpenter had his hand wounded and poisoned with the discharge issuing from a dead body whilst placing the corpse in the coffin. A severe attack of erysipelas followed. Subsequently his wife had a similar attack of erysipelas. Their daughter living with them, and in the seventh month of pregnancy, was then taken with an attack of fever. In a day or two, she gave birth to a dead child, whose body had all the appearance of being affected with erysipelas, as the arms of the mother's parents previously were. The mother herself died within twenty-four hours, with the symptoms of malignant puerperal fever. On his road home, from visiting this patient, Dr. Hill was called to a case of labour, and this other was also attacked with puerperal fever. Dr. Arneth's very valuable paper adduced what was apparently incontrovertible evidence of puerperal fever being propagated in the way he suggested—viz. by medical men carrying on their fingers matter capable of producing it from bodies which they were dissecting, and inadvertently inoculating that matter into the mucous membrane of the vagina of patients in labour. In these cases, the fingers of the accoucheur acted like the ivory points or ivory lancets of the old inoculators and vaccinators—that is, when once dipped in the poison, they might retain it till they had again inoculated that poison into the bodies of other healthy subjects. The vaginal mucous membrane was generally stretched and abraded in labour, the perineum was often slightly torn, and the whole afforded a surface in a condition easily inoculable. But if students and practitioners, with their hands containing some portions of morbid matter act thus, by inoculating that matter on the abraded surface of the vagina, produce puerperal fever, no doubt, under similar circumstances, surgeons could and did inoculate into the wounds which they made or dressed, similar matter producing the similar disease of surgical fever in their patients. If it could be inoculated into the abraded surface of the vagina, it could be inoculated into a recent wound. If it produced fever in the one set of patients, it would produce fever in the other. And, since bringing under the attention of the profession the communicability of surgical fever, Dr. Simpson stated that he had heard various facts in regard to it, all of which more and more convinced him that surgeons, like accoucheurs, were occasionally the unhappy media of inoculating their patients with morbid matter, producing in them surgical fever, as in puerperal patients, obstetricians, by the same means, produced in their patients puerperal fever. He had no doubt that it would take many long years fully to convince surgeons of this fact; but still it was his conviction that surgeons would ultimately both believe and act upon it, and that their doing so would be a means of preventing many of the numerous deaths which now occur after operations, particularly in hospital

surgical practice. The mortality in most lying-in hospitals upon the Continent of Europe was very much higher than the mortality in the same institutions in Great Britain and Ireland. He did not think that the diminished mortality amongst us was in any way owing to the fact of superiority on our part in obstetric practice, but it was owing to the fact of British accoucheurs generally having a belief in the contagious communicability of puerperal fever, and taking their measures accordingly. He was sincerely of opinion that the want of that belief was a great cause of mortality in the continental lying-in hospitals generally, and that in them many lives were yearly sacrificed to medical prejudice, in the want of a proper belief, on the part of the medical men in charge of them, in the contagious communicability of puerperal fever; and in such a fatal disease it was ever to be recollected that prevention was a far mightier object than cure. Already, by Dr. Semmelweiss' belief in the contagious propagation of puerperal fever, and by the hygienic means which that belief suggested, several hundred maternal lives have, within four years, been saved in the Lying-in Hospital of Vienna. If one hospital could afford such results in four years, how many maternal lives might be saved over the Continent of Europe, provided all the practitioners of Germany, France, Denmark, &c., could be as thoroughly impressed with the contagious character of puerperal fever as British practitioners and hospital accoucheurs now generally were! Continental accoucheurs generally did not understand exactly the kind or description of evidence upon which British practitioners founded their belief in the contagious communicability of puerperal fever. Some of the continental writers on this subject seem to imagine that British obstetricians believed that puerperal fever was usually propagated directly from one patient to another, and, not seeing this occur, when a puerperal fever patient, in their continental hospitals, lay by the side of another healthy woman, they imagine that from this fact they had a disproof of the opinion of the contagious communicability of the disease. But in this country we do not believe that the disease is usually propagated in this way, directly from individual to individual, but indirectly, through the medium of a third person, and that person generally the medical attendant or nurse. But that it was so propagated by the medical attendant or nurse, we further believe upon the following species of evidence—viz., that it was, as in Dr. Moir's late cases, and in most other instances, distinctly and precisely limited to the practice of one or two practitioners only, out of a large number of medical practitioners, practicing in a large community. Many examples were recorded, and many more unrecorded were known to the profession, of the disease being thus limited to the practice of a single practitioner in a town or city; all, or almost all, the patients of that practitioner being affected with it, where none of the patients of other practitioners were seized with any attack of the disease. In these cases we could not believe it to be owing to any morbific influence present in the air, or emanating from the locality in these cities or towns. For, if so, it would affect indiscriminately the patients of all practitioners. But it had been often seen, as it was just now remarked, to haunt the steps of a single practitioner, and a single practitioner only, in a community. Many instances of this were known and published. One would suffice for illustration. Dr. Roberton, of Manchester, tells us that, in 1840, upwards of 400 women were delivered by different midwives in connection with the Lying-in Hospital in Manchester. These 400 women were delivered in different parts of the town at their own houses: 16 of them died of puerperal fever; all the others made good recoveries. Their production could not have arisen from any general epidemic, or atmospheric, or telluric influence; for the fatal cases occurred in no one particular district, but were scattered through different parts of the town. Now these 400 and odd women were attended in their confinements by twelve different midwives. Eleven of these twelve midwives had no puerperal fever amongst their patients. The sixteen fatal cases had occurred in the practice of one only of the twelve. The disease in fact was limited entirely to her patients. There must have been something, then, connected with that one midwife, in which she differed from the other midwives, inasmuch as all her patients took the disease, whilst the patients of all the other midwives escaped from it. And in medical philosophy we cannot fancy that this something consisted of

aught else than some form of that morbific principle or virus to which pathologists give the name of contagion. Further, that the disease is really in such instances propagated by this third person (the physician or the nurse) carrying to the parturient patients a virus capable of producing the disease, is shown by this kind of additional evidence: That, when the disease has broken out in the practice of one accoucheur, it will spread to the practice of others of his obstetrical brethren, provided they put themselves in a condition so as to carry off the contagious virus from the patients of the first practitioner. In 1836 or 1837, Mr. Sidey of this city had a rapid succession of five or six fatal cases of puerperal fever in his practice—at the time when the disease was not known to exist in the practice of any other practitioners in this locality. Dr. Simpson, who had then no full and proper belief in the contagious propagation of puerperal fever, attended the dissection of two of Dr. Sidey's patients, and freely handled the diseased parts. The next four cases of midwifery which Dr. Simpson attended were all affected with puerperal fever, and it was the first time that he had seen it in practice. It was upon evidence of this kind that British pathologists generally reckoned in founding their belief on the contagious communicability of puerperal fever. And it was evidence of this kind which had intuitively driven them to adopt those means of prevention or avoidance, which are so highly necessary, in order to arrest the propagation of this fearful malady. The measures proposed and so successfully adopted by Dr. Semmelweiss in the Vienna Hospital were beautiful from their mere simplicity, but they were full also of a great lesson to us all. They proved, in a manner beyond all dispute, the great importance of carefully ridding the fingers from all matters in the least degree likely to prove hurtful, if inoculated into the vagina of a puerperal patient. And no doubt, as Dr. Arneth had remarked, such matters were always present in the fingers as long as, despite even of common ablutions, they emitted a disagreeable animal odour, the presence of that odour being a perfect proof of the presence of morbid matter capable of producing the odour. Dr. Semmelweiss and Arneth recommended, for the purpose of ridding the fingers of this morbific matter, the use of chloride of lime. Dr. Simpson had used for the same object for years daily (or rather generally often during the day) a solution of cyanide of potass, which was more effective even than chloride of lime, and had this other advantage, that it removed readily and at once all such stains as the fingers of the accoucheur were apt to receive in treating uterine diseases—with nitrate of silver, iodine, and the like. Dr. Semmelweiss believed that animal matter, in a state of *putrefaction*, was the material which constituted the inoculable virus capable of being transmitted to puerperal patients, and of producing puerperal fever in these patients. Dr. Simpson had strong doubts as to the idea of this matter being necessarily putrid being correct. We see cases in which animal substances are allowed to putrefy within the vagina, and to be applied to the mucous membrane of that canal, without producing puerperal fever. When a polypus, for example, was ligatured, and left in the vagina, it often was killed and putrefied there for days before the stalk was completely cut through by the applied ligature. And yet in these cases the patient had little or no liability to attacks of disease like puerperal fever. Besides, in these cases, the other condition is present, of an abraded surface, as well as putrid matter in contact with that surface, for the vagina was sometimes no doubt more or less injured in its mucous surface while passing the ligature; and the ligature itself always made a raw, open, and inoculable surface, as it cut through the pedicle of the tumour. Surgery on other parts of the body admitted of many similar proofs against this doctrine. Dr. Simpson had always believed and taught another theory, but not perhaps a perfectly correct one, in regard to the nature of the contagious material. He believed that generally, if not always, the material which, when carried from one subject to another, could produce puerperal or surgical fever in a newly inoculable subject, was an *inflammatory secretion*, just as the inoculable matter of small-pox, cow-pox, syphilis, &c., was an inflammatory secretion. The case adduced by Dr. Arneth, of puerperal fever breaking out in the hospital apparently in consequence of matter being conveyed from cancer of the uterus to a series of puerperal patients, was not so strong an argument against the view as

might at first sight appear. For the cancer patient was, according to Dr. Arneth's own account, several days in labour, the carcinomatous degeneration of the cervix preventing the opening of the os. And there can be very little doubt that, by the end of several days, the carcinomatous structures were in a state of inflammation, and probably gangrenous decomposition, from the protraction of parturition. At all events, if the carcinomatous cervix was really putrid, it was in all likelihood putrid from the result of gangrenous inflammation in its compressed and irritated structures. But, be this the case or not, it was important to remark that obstetricians had now very decided proof of various kinds of morbid matters which were capable, when inoculated into the vagina, of leading on to puerperal fever. For, first of all, when the bodies of patients who died of puerperal fever were opened, the inflammatory effusions in the abdomen and elsewhere, when brought in contact with the fingers of the accoucheur, were capable of producing the same disease in other healthy patients, upon whom they were accidentally inoculated. In other words, the morbid effusions of puerperal fever in one woman were capable of producing puerperal fever in another woman, when inoculated into her system. But, secondly, the same seems to hold true with regard to the secretions coming from the bodies of such patients, even when they did not die and were not dissected. Dr. Simpson alluded to the cases, for example, of nurses and midwives, whose fingers came into contact with the discharges from the vagina of puerperal patients, giving the disease to other parturient women, and who had not of course, in the way of post-mortem examinations, been bringing their fingers in contact with the more internal secretions. Dr. Gordon mentions more than one case of this kind in relation to midwives, in his history of the Aberdeen puerperal epidemic. Thirdly, he believed that the cases recorded by the late Mr. Storrs, Hutchinson, Ingleby, and others, sufficiently proved that the inflammatory secretions in some other inflammatory diseases besides puerperal fever, when carried by the medical attendant, and inoculated into the maternal canals of a parturient female, were sometimes capable of producing in such females true puerperal fever. This seemed more particularly true with regard to the inflammatory effusions in erysipelas and gangrenous inflammation of the limbs, scrotum, vulva, or other part of the body. That the morbid matters thrown out in those more subacute forms of disseminated or phlebitic inflammation, which sometimes occur after delivery, were capable of producing puerperal fever when inoculated into puerperal patients, was a fact of some importance to hold in view. And the following recent case will perhaps impress the truth of it. A short time ago, Dr. Simpson was requested to see a case of pelvic abscess in a patient delivered for four or five weeks previously. The abscess was artificially evacuated, but only with partial relief; as there were evidently other local inflammations going on, both in the abdomen and chest. The patient died about six or seven days after delivery. The practitioner who originally attended her, and who had no puerperal fever cases in his practice, was not able to be present at the dissection. Another able medical practitioner—whom he had called to the case after the inflammatory attack had begun—opened the body. Though an excellent and well-informed physician, he rather decried any fear about the possibility of contagion, when Dr. Simpson suggested it to him as he came into the room, and found him opening the body. This gentleman had no puerperal fever cases in his own practice; but within fifty hours after opening this body, he happened to be called to five cases of midwifery. Four of these patients were attacked with puerperal fever, three in a very severe, and one in a mild or abortive form. The fifth patient altogether escaped, the child having been born before the practitioner's arrival. Fourthly, there were one or two recorded circumstances which would lead one to the belief that some varieties of febrile exhalations, received by inhalation into the blood of a newly-delivered woman, are capable of producing in her a disease analogous to, if not identical with, puerperal fever, the effect being the same as if morbid matter had been introduced into her blood, not by inhalation into her lungs, but by inoculation and imbibition into the vagina, just as in the spreading of small-pox we see the disease liable to be produced in two ways—first, by the direct inoculation of the morbid inflammatory matter contained in

pustules on the arm of a healthy individual; or secondly, by individuals inhaling the morbid effluvia from the bodies of patients labouring under the disease, without being inoculated into them. Dr. Collins mentions an instance in which a patient was admitted into the Dublin Lying-in Hospital, labouring under a bad form of typhus fever. Two puerperal females, who occupied the adjoining beds, were attacked with puerperal fever, and died. In another instance, in the same hospital, a similar accident happened. A patient labouring under typhus fever was admitted into one of the small wards of the house, which contained only some four beds—all the three other women were attacked with puerperal fever, and two of them died. But we had no very decided evidence, as far as Dr. Simpson knew, from hospital observation, that a woman labouring under puerperal fever could, by the exhalations from her body, infect with the same disease other patients lying near her in the same ward. Fifthly, some accoucheurs believe in the possibility of the imbibition of the effluvia from typhus or puerperal fever patients by the clothes of the medical attendant, and that the subsequent inhalation of such matter by the parturient female might be a means of artificially infecting that female with the disease. Dr. Simpson could not doubt that the saturation of the bed-clothes, &c. with the discharges of a puerperal fever patient might give the same disease to another puerperal patient who was laid in them. This, and one or two other circumstances, were enough to show that, for safety's sake, it was always well to act upon the possibility of the clothes even of the medical attendant being thus a medium of contagion. In some observations on the subject of the contagion of puerperal fever, Dr. Merriman states, that he once attended the dissection of a puerperal patient, but did not touch the body or any of the parts. The same evening he attended a lady in labour, and she was attacked with the disease. In his account of the Aberdeen fever, Dr. Gordon mentions that a man-servant appeared to carry the infection of the disease from his sister in Aberdeen to his wife in the parish of Fintry, six miles from Aberdeen. The midwife who attended this woman infected two other parturient patients in the same parish soon afterwards, both of whom died. If a statement of this kind could be established as a fact, by careful analysis of the requisite evidence, it would be a matter of importance, as adding to our knowledge of the modes in which this disease may be propagated. In the instance which Dr. Moir had mentioned, of Dr. Hamilton visiting the patient of another practitioner affected with puerperal fever, and immediately after having several cases in his own practice, it was not at all unlikely that he had made some examination of the patient, or, at all events, without proof that he had not, it would not be proper to conclude that the disease in that instance could be carried by the clothes of the physician acting in the way of *fomites*. The history of the other case adduced by Dr. Moir, of the fever breaking out on ship-board, when bed-clothes had been used which had been employed previously in the beds of women who had died of puerperal fever, would be exceedingly important in the way of proof, if it had been more substantially reported and authenticated. One can scarcely believe that such clothes should be shipped off after being thus used, without having been previously thoroughly washed and cleansed. Dr. Simpson had also been informed of an instance, by Professor Patterson, in which a medical gentleman, after having lost several cases of puerperal fever, got rid of the disease in his practice by changing his clothes, and using chloride of lime, &c., but it again returned to him when he happened to deliver a patient, immediately after wearing a pair of gloves which he had used during the time of the puerperal epidemic; and certainly, if there was any piece of dress more apt to retain the contagion than another, it was this useless and superfluous appendage to our attire; for it might retain the morbid secretions that were originally on the fingers of the accoucheur, just as our vaccinating glasses would retain the cow-pox matter. Again, in a small ward or small hospital, one could almost, as it were, produce puerperal fever at will, by crowding a great number of puerperal patients together in the same ill-ventilated room. The discharges from the different patients in a few days render the air of such a room so loaded and morbific as to be oppressive to all entering it, and capable of producing febrile action by the inspiration of it, in those puerperal patients who occupied its

beds. This no doubt was true when this experiment was driven, as it sometimes accidentally had been, to an extreme. But it was true also in its lesser degree; for Dr. Simpson believed that one great cause of weed, ephemera, and febrile attacks during puerperal convalescence, was the still too slight attention that was paid to the ventilation of the lying-in chamber. He had repeatedly, he thought, seen more or less slight febrile action set up in a patient, from her curtains being closely drawn around her bed for eight or ten hours during the night, being thus obliged to breathe an air loaded and affected with the morbid animal discharges from her own body. Dr. Arneth had not alluded to the question, Whether the disease was ever caused or not, or a predisposition at least given to it, by epidemic influence? Dr. Simpson believed that we ought not to forget altogether the possibility of epidemic influences acting directly or indirectly in the causation of it. During the present century, the disease had nearly, in two or three instances, as in 1819–20 and 1829, prevailed in most of the cities and lying-in hospitals of Europe. And it was difficult or impossible to account for this simultaneous existence everywhere, without believing that everywhere there was some general epidemic cause tending to its production. In this the history of puerperal fever did not differ from the history of other contagious febrile diseases. During the latter part of the last century, for instance, small-pox contagion existed in almost every town and village in England, because in almost every one of them there were artificial causes operating to produce and perpetuate the disease, inoculation being very generally practiced. But it was only in particular years, and sometimes at a considerable distance of time, that the disease became epidemic. And when it did so, it was owing to other causes being in action in addition to the mere inoculation. Nay more, in some conditions, as during the blowing of the Harmattan wind, we know that small-pox and cow-pox cannot be propagated even by direct inoculation—facts showing us the influence of epidemic constitutions in effecting a greater or less tendency to the production and spread of particular diseases. One predisposing cause to attacks of puerperal fever was, no doubt, the state of the constitution of the patient immediately after delivery. Dr. Collins' cases in the Dublin Hospital showed, not only that the disease was far more apt to attack those who were worn out by long labours than those women who had escaped with parturitions short in their duration, but also that the malady, when it did appear, was much more fatal in the former than in the latter class of patients. The Society was aware that it had been proposed by various pathologists of late years to give various prophylactic medicines to puerperal patients after delivery, and to surgical patients after operations, in order to prevent the attacks of puerperal or surgical fever. All these measures, such as sulphate of quinine, muriate of iron, &c., had the object in view of strengthening the constitution of those to whom they were exhibited, so as to diminish or destroy the predisposition to these feverish attacks. And we could understand their proposed mode of action when we reflected upon the fact that a predisposition to such attacks was given by any unusual degree of exhaustion or debility in the patient. Every patient exposed to the contagion, and even to the inoculation, of small-pox, for example, did not take small-pox. There were other means by which the predisposition to that disease was reduced or removed, than by previous variolation or previous vaccination. And perhaps, particularly, or otherwise, by medicine, we may be able to reduce or remove the predisposition to puerperal fever, as well as to scarlatina, measles, &c. Lastly, Dr. Simpson observed, no doubt, sporadic cases of puerperal fever did, and were from time to time occurring, traceable to no contagion or any other cause capable of being averted; but owing, as in Dr. Moir's first case, to morbid actions going on in the constitution of the patient even before delivery; or to morbific agencies capable, under other circumstances, of producing fever or inflammation acting upon the patient in delivery. Dr. Arneth had particularly called the attention of the Society to the connection which was generally believed by British accoucheurs to exist between erysipelas and puerperal fever; and he had stated that the relation between these two diseases had not been observed in Vienna. Dr. Simpson, however, expressed his opinion, that now that Dr. Arneth's attention had been directed to it, he and his compatriots would find such

relations existing between these two diseases, which English accoucheurs spoke of. We, all of us, often overlook such facts in pathology till our attention happens to be prominently called to them. Dr. Simpson had long believed and taught that there was a pathological connection between the two diseases in question, as to their pathological nature, their pathological anatomy, their symptomatology, and their causation. The two diseases had in Britain been repeatedly observed to prevail at the same time, in the same town, in the same hospital, or even in the same wards. There were various accurately recorded instances in our British journals, which he had already alluded to as showing this—that when the fingers of medical men were impregnated with the morbid secretions thrown out in erysipelatous inflammation, the inoculation of these matters into the genital canals of our parturient females produced puerperal fever in them in the same way as the inoculation of the secretions from patients who had died of puerperal fever itself. The effused morbid matters in the one disease, as in the other, were capable of producing the same effect when introduced into the vagina of a puerperal patient. In an instance recorded by Mr. Hutchinson, two surgeons, living at ten miles distance from each other, met half way to make incisions into a limb affected with erysipelas and sloughing. Both practitioners touched and handled the inflamed and sloughing parts; and the first parturient patients that both practitioners attended within thirty or forty hours afterwards, in their own distant but respective localities, were attacked with, and died of, puerperal fever. The late Mr. Ingleby mentions an instance of a practitioner making incisions into structures affected with erysipelas, and going directly from this patient to a patient in labour. This patient took puerperal fever and died. And within the course of the next ten days, seven cases of puerperal fever occurred in the practice of the same practitioner, almost all of them proving fatal. And various other cases, similar to the preceding, were well known to the profession. Again, however, the reverse of this was equally true. Not only was the morbid matter in erysipelas apparently sometimes capable of producing puerperal fever, but the secretions and exhalations from puerperal fever patients seemed, on the other hand, sometimes capable of producing erysipelas. In the series of puerperal cases met with by Mr. Sidey in this city about 1837, and which had already been alluded to, the morbific matter carried from two or three patients seemed, as has been previously stated, to produce the disease, both in Dr. Simpson's own practice, and also in the practice of Dr. Patterson. The morbid effusions of these patients created the same disease of puerperal fever in other patients to whom that matter was carried. But the morbid secretions and exhalations from these same patients appeared to do more—viz. they produced also erysipelas in several of the nurses, relations, and attendants upon the patients. Four or five cases of erysipelas followed upon a single one of these puerperal cases in Mr. Sidey's practice, and that during the week subsequent to the puerperal patient's death. The patient's mother-in-law, who was in constant attendance upon her, was attacked with fever and erysipelas in the face and head. One of the patient's sons, a boy five years of age, was attacked with erysipelas of the face; a daughter was seized with fever and sore throat, with dusky redness, which continued for some time; and the patient's sister-in-law was attacked with acute gastric symptoms, and great abdominal irritation, under which she sunk in a few days. Here we have apparently the same focus of contagion producing puerperal fever in puerperal patients, and erysipelas, inflammatory sore throat, &c., in patients who were not in a puerperal state. Dr. Hill, of Leuchars, had published in the *Monthly Journal* of last year two very important series of cases, showing, in a similar way, the connection between producing puerperal fever and erysipelas, in the identity of the poison that was capable of producing these two diseases. We have already seen that the inoculation of the morbid matters from erysipelatous structures into parturient patients will occasionally produce puerperal fever. But furthermore, the converse of this is so far also true, viz., that the inoculation of morbid matters or secretions from puerperal fever patients into other healthy individuals, will occasionally produce in the latter attacks of erysipelas. A considerable number of instances have been published by Dr. Duncan, Mr. Travers, and others, in which medical men have died from

punctures received in dissection, or rather from erysipelatous inflammation of the arm and side following such punctures. The history of a large proportion of these cases shows, further, that the matter thus inoculated, and which produced the fatal erysipelas and fever, was a puerperal fever secretion; as in most instances the disease resulted to these medical men from opening the bodies of patients who had died of puerperal fever. Whilst thus arguing for some pathological connection between erysipelas and puerperal fever, Dr. Simpson further stated that, though, in a few cases, patients labouring under puerperal fever had been attacked with erysipelas of the skin and cellular tissues—and, on the other hand, patients who were delivered when suffering under erysipelas, were sometimes subsequently attacked with puerperal fever—yet these results were not always observed. He alluded to cases where erysipelas had attacked women before delivery, but was not followed by puerperal fever. And he had seen more than one patient labouring under puerperal fever have inflammation of the skin, but that of a pustular type, like ecthyma, and not of an erysipelatous character. In stating this, he wished to express his belief that the diseases were not in all respects pathologically identical, though the morbid secretions in the one were capable of producing, in those predisposed to it, the other disease—erysipelatous effusions producing puerperal fever, and puerperal fever secretions producing erysipelas. Other febrile and inflammatory products, besides those of puerperal fever, when inhaled through the lungs into the blood, or inoculated into the blood through the vagina, may, as already stated, probably produce puerperal fever in addition to those we have principally spoken of, viz., the secretions from puerperal fever and erysipelatous patients. And he thought the whole subject one of extreme importance to have more thoroughly investigated; because, in a case like puerperal fever, it was the means of prevention that we were to look to, and to expect success in, more than the means of cure. It was here, as elsewhere, evident that human life would probably be saved to a far greater extent by studying the means of preventing the causation of disease, than by any study of the means of treatment, after disease was once actually commenced. And when it was remembered that about 3000 women still died in child-birth in England and Wales alone every year, and that a large proportion of these 3000 maternal deaths were deaths from puerperal fever, he thought he need not make any further observations on the importance of studying the means of prevention in such a fatal and formidable disease, nor offer any apology for the length of the imperfect remarks which he had ventured to offer on this important subject.—*Ibid.*

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43. *Contagiousness of Puerperal Fever.*—Dr. Peddie said, that he had given a good deal of attention to the subject of puerperal fever, from the occurrence of some cases in his practice, upwards of five years ago; and he quite agreed with Dr. Arneth in his excellent remarks on the danger of obstetrical manipulation, after being recently engaged in post-mortem examinations. That, he thought, was now a pretty generally admitted opinion in this country. Dr. Robert Lee of London, Dr. Merriman, and others, had, many years since, mentioned cases in proof of this source of danger; and, of late, accoucheurs in this city had exercised much caution. To point out still more strongly the risk of accoucheurs handling morbid preparations, he would notice what he believed to be a fact, that the series of puerperal fever cases which Dr. Simpson had mentioned as occurring in his practice some years since, from assisting at an autopsy of one of Dr. Sidey's puerperal cases, did not end there, but that a practitioner in Leith, having examined, in Dr. Simpson's home, a portion of the uterus obtained on that occasion, had immediately thereafter three fatal cases of the fever in his own practice. With regard to the power of the solution of the chloride of lime as a disinfecting wash for the hands of those engaged in midwifery practice, Dr. Peddie had no doubt; and in that belief he had personally used it much. He said that it might be in the recollection of many of the members of the Society, that the cases of puerperal fever which had occurred to himself, and regarding which he had then read a communication, took place in two series. The first series of these cases occurred in such a way as to take him by surprise, and before the necessity for precaution was suggested. Now, however, he changed

his clothes, and washed often with the solution of the chloride of lime; and afterwards, at intervals of a few days, delivered three patients who made most excellent recoveries. The first patient, however, of the second series was a personal friend of the last patient of the first series, resided close by, was with her during her confinement, continued visiting for some days after the fever had shown itself, in spite of urgent remonstrances, and even assisted in the sick-room arrangements, changing articles of clothing, removing evacuations, &c. Thus, in Dr. Peddie's opinion, she obtained the fatal virus direct from her friend, and anew communicated it to him, who, in turn, unwittingly was the medium of propagation to another patient within the next twenty-four hours. Since then, Dr. Peddie had been much on his guard when engaged in surgical dressings, when attending bad cases of fever, erysipelas, or post-mortem examinations, considering it his duty to wash well thereafter with the solution of the chloride of lime. Whether in consequence of these precautions or no, he had not since met with any such cases in his practice. As to the question of the possibility of puerperal fever being propagated through the medium of clothing, Dr. Peddie mentioned a case, recorded in the "Provincial Journal" (No. 166), as occurring to Dr. Allen of York. The doctor, after seeing the last of a long list of fatal cases, was surprised to find a new instance of the disease, two months afterwards, in the practice of his assistant. It was ascertained, on investigation, that that gentleman had put on the pea-jacket which Dr. A. had last worn when in attendance on a case of the fever. Dr. Peddie was not prepared to assert the correctness of this explanation; but thought that it was better that accoucheurs should not dismiss from their minds the possibility of this fearful malady being communicated by articles of dress.—*Ibid.*

44. *Causes and Treatment of Secondary Hemorrhage after Parturition.*—A valuable paper on this subject is published, in the *Dublin Quarterly Journal of Medical Science* for May, 1851, by Dr. M'Clintock. It specially relates to those cases in which any profuse sanguineous discharge from the vagina takes place, commencing six hours after a patient has been delivered, and within a month from this epoch.

Causes.—I. *The presence of a portion of placenta in the uterus* is one of the most frequent causes. This is observed to be most generally the result of artificial removal of the after-birth, especially if the operator be incautious or timid, but it may happen in the most skillful hands, when the cause of detention has been morbid adhesion of a very intimate nature. This seldom produces any untoward symptoms until the third or fourth day; but then, if it be not cast off, many may be developed. The author specially speaks of the probability of uterine or crural phlebitis, and of secondary hemorrhage, supervening. This latter seldom comes on until the fourth or fifth day, and it may not do so until the second week, or later; in fact, so long as a fragment of placenta remains in the uterine cavity, the patient can have no security against a reccurrence of the sanguineous discharge, and the period at which it may come away is extremely variable; sometimes not until the third week, or later.

II. *The retention of a coagulum, of any size, in the uterus beyond the first few hours after delivery.* In this case, the immediate or exciting cause of the effusion is probably some accidental displacement of the clot, or excitement of the arterial system. The symptoms very much resemble those produced by the retention of part of the placenta; but there is less of the fetid smell, and no shreds or portions of the placenta are expelled, whilst the coagulum, if entire, has exactly the shape of the uterine cavity.

III. *Relaxation of the uterine fibres.*—This is admitted to be a point, in regard to which it is difficult to obtain direct evidence; but several cases are referred to which favour such a view; and it is observed that, from the numerous and strongly marked sympathies of the uterus, it is reasonable to conclude, that for some days, at all events, after parturition, there may be an interruption of its contractile function, through the influence of deep mental impressions, or certain bodily derangements.

IV. *Local or general disturbance of the vascular system*, whether induced by premature exertion, the incautious use of stimulants, agitation of mind, local

determination of blood, or whatever tends to increase the force of the vital current. A knowledge of this cause points out an additional reason for enjoining strict rest, and the horizontal position, when the womb remains unusually large at a late period after delivery.

V. *Great fecal accumulation* in the lower part of the great intestine is mentioned on the authority of Moreau, who mentions cases in which the hemorrhage ceased upon his mechanically removing the excrementitious matter.

VI. *Functional disorder of the liver.*—Dr. Ayre has known this form of uterine hemorrhage to have been produced by functional disorder of the liver, and to have been suppressed by the administration of calomel. At first he ascribed the effect of the medicine, in relieving the hemorrhage, to the evacuation of morbid matters from the bowels; but further, and more accurate observations of the colour and condition of the stools, of the course of the disorder and effects of the remedy, convinced him that such was not the case; and that the effect arises from an alteration of the morbid actions of the liver, and other organs of digestion. The cause is said to be in this case a sudden interruption of the secreting function of the liver, which gives rise to an abdominal venous congestion, in which the uterus may participate; and the indication of cure for the hemorrhage is to restore the biliary secretion. Calomel, he observes, is the medicine which must be mainly relied on; and it must be given in small, but frequently renewed doses, following them up by aperients, or combining them with minute doses of opium, when a diarrhœa is present, and continuing them until some impression is made upon the complaint, even at the risk of slightly affecting the mouth.

VII. *Inflammatory ulceration of the cervix uteri.*—According to Dr. Henry Bennett. The author thinks that the frequency of this, as a cause, has been somewhat exaggerated; for, first, Dr. Bennett observes, that inflammatory ulceration of the cervix is of frequent occurrence during pregnancy, which cannot be said of lochial menorrhagia; and, in the second place, the author remarks, that he has strong reason to believe that many patients, affected with chronic inflammation and ulceration of the os uteri, had been delivered under his care, who nevertheless had no subsequent attack of hemorrhage, or extraordinary amount of lochial discharge. It is suggested, however, that it occasionally happens, especially in first labours, that the os uteri is slightly fissured by the passage of the child, and that this might put on an ulcerous character, and thus give rise to hemorrhage during the puerperal state.

VIII. *Presence of a polypus attached to the uterus,* which may for the first time give evidence of its existence soon after delivery. Various authorities and cases are referred to on this point.

IX. *Inversion of the uterus,* it is said, has been long recognized as a cause of hemorrhage post partum. "I feel strong reasons," says Mr. Crosse, "for believing, as has been repeatedly stated by authors of high reputation and great experience, that partial inversion exists more often than is generally suspected, and is the cause of hemorrhage after the delivery of the afterbirth. The loss so produced ordinarily takes place immediately upon its removal; but it may be repeated, at uncertain intervals, subsequently, if the malposition be not rectified." The hemorrhage may continue for hours, or first show itself after several hours, or even after a day or two.

Besides the causes which are considered to be the ordinary causes of hemorrhage after parturition, the author refers to several cases in which it had occurred from causes of an unusual character; and in most of which its precise origin was only discovered on a post-mortem examination. These are highly interesting, and cannot be read without considerable advantage.

Treatment.—The general principles of treatment, in all these cases, are to tranquillize the circulation, both local and general; to promote the condensation of the uterine structure, and to use such constitutional and local remedies as may tend to favour coagulation at the mouths of the vessels.

The first and second indications are to be fulfilled, by enjoining perfect rest in the horizontal position, and withholding stimuli of every kind. The patient must lie on a hard bed, in which her hips cannot sink, and firm pressure, with occasional friction, should be made over the uterus, so as to promote its con-

traction, and expel any coagulum that might have formed within it. At the same time, the ergot of rye should be administered with as little delay as possible, since, in these cases, our chief reliance for the suppression of the discharge is on this remedy. Fifteen or twenty grains of the fresh powder may be given in the first instance, and repeated, if necessary, in forty minutes or an hour. When the discharge is not very profuse, five or six grain doses may be given every three or four hours; but in every case, the first dose should be a full one. If the patient be alarmingly reduced by hemorrhage, caution is necessary respecting it; as it is observed that the ergot exercises a decidedly sedative influence upon the system. Cold applications should not be applied on slight grounds for the first day or two after labour, for fear of inducing uterine inflammation; but otherwise there is no objection to them. A cold enema, with a spoonful of common marine salt, is recommended; as is also a moderate dose of the sedative solution of opium.

Should these means fail, recourse must be had to the tampon or plug. We must not forget the possibility of internal hemorrhage occurring during its use; which is to be guarded against by securing a pad over the uterus with a well applied binder, and occasionally examining the hypogastrium. The author adds, that a silk pocket handkerchief forms about the best material for a plug that can be used.

When the hemorrhage manifests a disposition to recur, recourse must be had to constitutional means for its suppression; and the state of the liver and bowels must be looked to. Acetate of lead receives a very qualified recommendation. Sulphate of zinc, in doses of one or two grains, with a quarter or half a grain of opium, may be tried, as also the dilute sulphuric and gallic acid; the latter, in one case, acted very promptly and effectually in suppressing the bleeding. The tincture of Indian hemp, and oxide of silver, are also spoken of in favourable terms.

If the hemorrhage is of an atonic or passive character, tonic and chalybeate medicines are recommended; and a very admirable combination of them, it is said, is the sulphate of iron, sulphate of quina, dilute sulphuric acid, and water; to which, if required, a little Epsom salts may be added. A strong infusion of bark and elixir of vitriol, with a small quantity of tincture of cinnamon, was recommended by Dr. Leake. In extreme cases of uterine hemorrhage, full doses of oil of turpentine, sometimes as much as an ounce, with half that quantity of almond oil, for a dose, was found of much benefit by Mr. Griffith of Wrexham.

When there is ground for suspecting that the hemorrhage results from the retention of a portion of placenta, or clot, a vaginal examination should at once be made, as speedy removal of the foreign body is desirable; but great caution is necessary in removing a portion of placenta when it is adherent, or when this proceeding would be attended with much difficulty.

When ulcerative disease of the cervix is the probable cause of hemorrhage, the treatment does not essentially differ from that of ordinary cases of inflammatory ulceration of the cervix uteri. Common prudence will suggest the advisability of postponing topical applications to the os uteri, until the system has recovered from the effects of parturition. If a fortnight, or three weeks, can be allowed to pass over, so much the better; then we may begin to touch the surface of the ulcer with the nitrate of silver, or some other caustic. A mild injection may be thrown into the vagina. Early and active counter-irritation should also be made over the sacrum. Constitutional treatment must in every case be employed, and the system restored as speedily as possible to its most normal state.

In hemorrhage depending upon a polypus, much circumspection is necessary in deciding upon its removal, as many unpleasant consequences have attended the operation under these circumstances, on account of the increased size and vascularity of the uterus, and the tendency still existing to inflammation and phlebitis. Hence, it is recommended to forego all attempts to extirpate the tumour as long as possible, or until the woman has recovered from the effects of parturition. These cases, however, require very different treatment according to their different circumstances. Many cases are referred to in illustration.—*Lond. Journ. Med.*, June, 1851.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

45. *Poisoning with Oxalic Acid.*—Communicated by Dr. Didama to T. R. Beck, M. D. Prof. T. R. Beck—Dear Sir:—The following case of poisoning which occurred in Syracuse on the 16th inst., may not be uninteresting to you. An Irish woman, aged thirty, of full habit and good constitution, feeling slightly ill in the morning, went without her breakfast, and about dinner time dissolved two large tablespoonfuls of what she supposed to be Epsom salts, in a small quantity of water. She did not notice that the taste of the mixture was unusual till she had swallowed at least two-thirds of it, when she immediately alarmed her companion, by exclaiming, "It's not salts at all that I've taken, and I'm kilt intirely." Dr. H. Hoyt, of Syracuse, was sent for in haste, and he found on his arrival—some twenty minutes after the accident—that the patient had vomited twice; at first only the solution she had taken, and subsequently a dark-coloured, bloody-looking fluid, in which were numerous white membranous patches. The Dr. promptly gave an emetic of ipecac., which produced copious vomiting of grumous matter, similar to that previously discharged. Although pretty well satisfied of the nature of the poison, he hastened with a sample to the office of Mr. Fuller, a practical chemist, and found, on applying the proper tests, that the supposed salts were oxalic acid. Returning to the patient immediately, he gave her about half an ounce of prepared chalk, and sent for me to come with my stomach-pump.

I arrived about an hour and a half after the poison had been taken, and found the woman quiet, and nearly free from the intense burning pain in her throat and stomach which she had felt previous to my arrival; with an anxious countenance; pulse 92, and feeble; tongue and fauces very red.

After two efforts, unsuccessful on account of the irritability of the œsophagus, I introduced the stomach tube, but the constant retching and extreme distress occasioned by its presence, obliged me to withdraw it, and to cease further attempts for its introduction. A dark, bloody, ropy matter, containing a great many white flakes and shreds, was immediately vomited.

Small quantities of flaxseed tea were ordered to be given occasionally, with a dose of olive oil in the evening. During the night she experienced slight pain in her stomach, with much thirst, and in the morning discharged from her bowels a large amount of matter resembling what she had vomited.

I visited her again yesterday, and found her at work in the kitchen. She has taken no nourishment, except rice water, since the accident, and feels rather weak, but is comfortable in other respects. Is it not strange that so large a quantity of the acid, *taken fasting*, should not have produced more violent symptoms, and even death? Of course she owes her recovery to her speedy vomiting, and to the administration of the emetic, although the chalk may have neutralized some remaining portion of the acid.

Salina, N. Y., *August* 9, 1837.

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46. *Note on the Poisonous Properties of the Milky Humour secreted by the Cutaneous Pustules of the Land Lizard and the Common Toad.* By MM. Gratiolet and Cloez.—It is an ancient and still common opinion that the land salamander or lizard (*Lacerta Salamandra*, Linn.) possesses a subtle venom, but at present this is deemed fabulous by the scientific, and the fluid secreted is only allowed to be acrid.

An accidental occurrence, some years since, caused doubts as to the correctness of this last. Several frogs placed in a cask with salamanders were at the end of eight days found dead. And having recently received a number of these last animals in a very healthy condition, we deemed the subject worthy of further experiments.

The liquor obtained from the cutaneous pustules is of a beautiful white colour, with a powerful odour. It flows freely when taken, but coagulates. Indeed, alcohol coagulates it instantly.

A small quantity inserted under the skin of the thigh of a small bird showed no marks of causticity, as is usually ascribed to it. But in two or three

minutes, the feathers bristled up, the bird staggered, its beak opened, and it made a convulsive noise. Soon it turned its head back, uttered plaintive cries, turned several times on itself, and died.

A yellow-hammer, wounded on the wing, died in less than three minutes; a chaffinch, similarly wounded, in twenty-five minutes, after two epileptic fits. Many other small birds died in about six minutes, and it was observed that life was prolonged when there had been a free discharge of blood from the small incision.

We experimented on a large bird—the turtle dove, but it died in twenty minutes, after terrible convulsions with alternate paralysis. *All the birds experimented upon had epileptic convulsions.*

When the poison was inserted under the skin of the thigh of a mouse and of a Guinea pig, these animals respectively manifested, at the end of six minutes, great suffering. The breathing was quick and painful; they slept, but the sleep was constantly interrupted by slight convulsions resembling the effects of an electric shock. Still, with all these animals the symptoms vanished in a few hours, and they recovered perfectly.

The Toad.—The milky fluid contained in the dorsal and parotid pustules of this animal is thick and viscous, of a yellowish colour, an unpleasant odour, and a nauseous bitterness, quite insupportable. Greenfinches and chaffinches, inoculated with it, died at the end of five or six minutes, with similar symptoms as in the previous case, *but without convulsions.* Even when dried, the fluid destroyed birds.

So far as anatomical examinations could be made, it was ascertained that all laboured under marked apoplexy.

It would thus seem that the common, vulgar opinion as to the venom of the toad is far from being fabulous.—*Comptes Rendus*, April 21, 1851. T. R. B.

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47. *On the Diminution in Weight of New-Born Infants.* By Dr. Hoffman.—It is a popular opinion that new-born children fall away during the early days after birth; and, seeing that, during that period, they evacuate meconium, the epidermis exfoliates, and matters are expired from the lungs, while the little milk they take is little else than a purgative colostrum, there is reason for its entertainment. Dr. Hoffman had thirty-six children who were successively born at the hospital at Wurzburg, weighed every morning, and in the present article, he gives the tabulated report of the daily examination; from which the general conclusion is drawn, that all children for the first thirty-six or forty-eight hours after birth become lighter, such diminution in the majority continuing until the third day. From this period, they increased again, so that by the fifth or sixth day, they have in general recovered the weight they possessed at birth.—*British and Foreign Medico-Chirurgical Review*, No. 13, Jan. 1851, from a *German Journal.* T. R. B.

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48. *On some Points in Medical Jurisprudence, deduced from a Series of Post-mortem Examinations for Judicial Purposes.* By Dr. Casper.—(*Casper's Wöchenschrift.*)

1. *Wounds inflicted during life.*—These are usually stated to be distinguishable from wounds inflicted after death by the suggillation which is met with round their edges. In those wounds, however, which are inflicted by shooting, or puncturing one of the large internal vessels, in which death takes place suddenly, without even agony, this sign will be wanting.

2. *External signs of violence absent.*—It is customary, where no external signs of violence are exhibited by (on) bodies found dead, to infer that violence has not been done, and burial is ordered accordingly. Over how many murders has mother earth in this way spread her mantle! In many cases, rupture of the ribs, livers, spleen, heart, &c., have caused death, and exhibited no outward signs of the fatal injury. (True, and worthy of frequent repetition, but not new. T. R. B.)

3. *Death from loss of blood* is usually characterized by the anæmic aspect of the body. It has been stated, as a rule, that the veins of the membranes of the brain do not partake of this character of bloodlessness. In many cases of

rupture, or wounds of the large vessels, these veins have been found completely empty.

4. *The tongue, in death by drowning*, is said to be always protruded beyond the teeth. Dr. Casper does not deny that this is very often the case, but refers to the details of several instances in which it was found behind the teeth, and to others also of death from different causes, *e. g.* wound of the heart, poisoning by sulphuric acid, in which it was found protruded.

5. *The uterus putrefies last of all the soft structures, except the lungs.*—This is often seen in the dissecting rooms, and more especially so in the bodies of the dead by drowning. Owing to this circumstance, the presence or absence of pregnancy can be determined with certainty.

6. *The mark of the umbilical cord on the neck* is not difficult to distinguish, in new-born children, in cases of intentional strangulation, though of considerable importance in a forensic point of view. There will be found, in such cases, a furrowed, roundish, volatile mark, the width of the cord, certain parts of the neck being slightly suggillated, usually doubly, in many cases trebly. This mark also presents parchment-like spots in different parts of its course; seldom any ecchymosis of importance, and never to the depth of the constriction. The fat of the folds of the skin may in winter assume a parchment-like hardness, which might be mistaken for strangulation, but the absence of the signs, besides the depression. is sufficient to prevent error on this account.—*London Medical Gazette*, Jan. 17, 1851. T. R. B.

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49. *Sale of Arsenic, Regulation Act.*—The principal provisions of this act, which was introduced by the Earl of Carlisle, and has recently passed, are as follows: The seller of any quantity of arsenic must enter in a book, kept for the purpose, the name and residence of the purchaser, and the purpose for which he alleged he wanted the article; the purchaser must also, in all cases, sign his name, and, except in certain cases, the arsenic should not be sold except in presence of a witness. With the view of preventing accidental poisoning, it has been proposed to add some foreign colouring matter to the arsenic, so that it may not be mistaken for flour, meal, carbonate of soda, or the like. But as the introduction of foreign matters might interfere with some of the purposes to which arsenic is applied in arts and manufactures, it is determined that no person shall sell less than ten pounds weight of uncoloured arsenic; unless it were stated by the purchaser that he wanted it for some purpose in which the introduction of an adventitious colour would be injurious. It is proposed that soot be employed as the colouring matter. *Arsenic is to be sold to none but male adults*, and where less than ten pounds of uncoloured arsenic is required, there must not only be the signature of the purchaser, but also the presence of a witness known to the seller.—*London Journal of Medicine*, April 1851. T. R. B.

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50. *Poisoning.*—A return has been printed, by order of the House of Commons, of the number of persons, male and female, tried in the United Kingdom, for murder and attempts to murder, by the administration of poison, from the year 1839 to the year 1849 inclusive. The number of persons so tried in England and Wales, during the ten years, was 154; namely, 69 males and 85 females; the number of convictions on either charge was 66. In Scotland, the number of trials for murder by poison since 1830, have been only nine, 2 males and 7 females; the convictions were 3. The trials for attempts to murder were 6, 3 males and 3 females. Total trials in Scotland 15; total convictions 7. In Ireland, the trials amounted to 56; 25 males and 31 females, and the convictions were 13. In 1839, there occurred only one conviction in Ireland for murder by poisoning. In 1841, there were 5 convictions found against 10 persons accused. In 1849, the number of indictments was 13; 7 males and 6 females, and the convictions 3.—*Monthly Journal of Medical Science*, December 1850. T. R. B.

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51. *Poisoning by Strychnine. Tannin proposed as an Antidote.*—A female aged 40, of a feeble constitution, and suffering under rheumatic neuralgia, was advised, in conjunction with other remedies, to use the nitrate of strychnine.

The dose prescribed was one twenty-fifth of a grain, with white sugar, every three hours. The invalid hastened to cure herself, and, without advice, doubled the dose and took it every hour. Vertigo occurred on taking the first. At the end of six hours, she had taken half a grain. The vertigo now became more intense, and she soon fell into a state resembling opisthotonos, with a feeble and frequent pulse. The spasms, however, gradually subsided, but the vertigo remained, with nausea, occasional vomiting, and difficult respiration. In this condition, cold water was frequently applied to the head, and tannin, to which citric acid and bicarbonate of soda were added on account of vomiting, was given in solution. The vomiting was soon allayed, and then the tannin alone was given in simple syrup. In twenty-four hours, all the severe symptoms were removed.

The tannin, of which the dose had been sixteen centigrammes, was now replaced by a less powerful astringent.

In giving the particulars of this case, it is conceded that the use of tannin was empirical, and the success is not ascribed to it solely.—*Journal de Médecine et de Chirurgie Pratique*, June 1851. T. R. B.

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52. *Case of Poisoning by Scheele's Green (on Paper Hangings).* By Thomas Stewart Traill, M. D., Professor of Medical Jurisprudence in the University of Edinburgh, May 31, 1851.—A child, aged three years, had obtained some slips of paper coloured with this material (Scheele's Green, or arsenite of copper), and had chewed some of it. He returned home, complaining of severe pain over his abdomen, and vomited repeatedly. His mother observed some shreds of this paper in his hands, and some of the green matter on his lips and cheeks. The vomiting returned at intervals with much severity, the pain was violent, and Dr. Traill was sent for; but, being from home, did not see the patient until three hours after he had been taken ill. Meantime, his pulse had become feeble, his extremities cold, and face livid. On seeing the patient, the vomiting was found somewhat abated and the skin recovering its heat, but the pain in the bowels was still acute. On learning the symptoms, Dr. Traill inquired whether the child had swallowed anything unusual, and was informed of the facts just stated.

He immediately prescribed the only remedies at hand—magnesia in milk, with the whites of two eggs diffused in water—until he could procure the hydrated peroxide of iron. But the symptoms were so much relieved before this could be obtained, that he deemed its use unnecessary, and next morning the boy was quite convalescent.

On the third day, the child passed by stool one or two fragments of the paper, on which some of the green colour was still visible, and for a few days more he did not eat his food with his usual relish, but no other bad consequence has followed.

Dr. Traill preserved the shreds of paper which the child had carried home, scraped off a portion of the green colour, mixed it with a little soda flux, and subjected it to heat in a tube; when he obtained a distinct metallic crust, with a crystalline inner surface, an alliaceous smell, and resolvable by heat and air into white crystals, with triangular facets, proving the colouring matter to contain arsenic, of which the quantity appears much more considerable than he expected. On comparing the pigment on the paper with Syme's Hernerian Colours, it answers to *pale emerald green.*

It seems improper to employ so dangerous a material as arsenite of copper, in such large quantity, on articles like paper hangings, which may often come in the way of children, or other persons little aware of the deleterious properties of this colouring matter.—Monthly Journal of Medical Science, July 1851. T. R. B.

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53. *On the Presence of Mineral Poisons in the Nervous System, as a Sequence of Acute Poisoning.* By M. Roucher.—This subject does not appear, as yet, to have been a matter of especial attention. Dr. Flandin, in his "Treatise on Poisons," decided it in the negative. Still there have been cases related of late, in which, as a result of poisoning more or less rapid, arsenic and lead have been found in the encephalon by several experimenters; copper has been de-

tected, in a solitary instance, in the spinal cord; and again, according to M. Millon, antimony accumulates in the brain in those fatal cases where the nervous symptoms indicate the principal seat of the poisonous action.

The author places but little reliance on previous facts, as they have not been sufficiently generalized. He performed a full series of experiments on dogs, with arsenic, lead, copper, and mercury.

In two made with arsenic, that substance was found in each case in appreciable quantities in the brain.

Mercury was also constantly found in three cases of poisoning with corrosive sublimate.

Copper was detected in five cases out of six, when sulphate of copper had been employed in various doses. The proportion of oxide of copper, estimated in three instances, varied from three to ten *dix-millièmes*. When no poison had been taken, the brain of dogs did not manifest an appreciable quantity of copper.

Lead was obtained in the proportion of eight *dix-millièmes* of the metal from the brain of a dog, who had been dead three days, and to whom three grammes of the acetate of lead (with the œsophagus tied) had been administered. The proportion is evidently extraordinary.

These results render it probable that similar ones may be obtained with other mineral poisons, and they seem to justify the opinion that poisons generally may exercise a special action on the nervous centres.—*Comptes Rendus*, April 28, 1851. T. R. B.

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54. *Homeria Collina.*—I introduce this plant (which is known to almost every child in the colony as the Cape Tulip), not for its therapeutical uses, but for its obnoxiousness. The poisonous qualities of its bulbs appear to have been known to some extent years ago; but judging from the rapidity with which death ensued in a recent case, when they had been eaten by mistake, it must be of a very poisonous kind. To Dr. Laing, Police Surgeon of Cape Town, I am indebted for the particulars of a most melancholy case of poisoning, caused by this bulb.

A Malay woman, somewhat advanced in years, with her three grand-children, respectively of the ages of twelve, eight, and six, partook, on the 18th of September, 1850, of a supper consisting of coffee, fish, rice, and ate along with this a small basin full of the bulbs of the *Homeria Collina*. The exact quantity which each ate is not well known. They appear to have supped between seven and eight, and retired to bed at nine o'clock, apparently in good health.

About one in the morning, the old woman awoke with severe nausea, followed by vomiting, and found the children similarly affected. She endeavoured to call for assistance, but found herself too weak to leave her bed, and when at five o'clock assistance arrived, the eldest girl was found moribund, and expired almost immediately. The little boy of eight years died an hour afterwards, and the youngest child was found in a state of collapse, almost insensible, with cold extremities, pulse scarcely fifty and irregular, pupils much dilated. The symptoms of the grandmother were nearly similar, but in a less degree, accompanied by constant efforts at vomiting. By using diffusible stimulants, she and this child eventually recovered.

The body of the oldest child was examined twelve hours after death. Marks of intense gastritis were found, particularly about the cardiac and pyloric orifices. The inflammation extended throughout the whole course of the small intestines, and there was great venous congestion in the brain.

It is remarkable that, in cases of poisoning from *fungi*, violent diarrhœa is present with vomiting; whereas, in the present case, obstinate constipation prevailed. Most probably, all plants belonging to this genus partake of the poisonous property, which, in the case mentioned above, was not dissipated by boiling. Floræ Capensis Medicæ Prodromus. By L. Pappe, M. D.—*Pharmaceutical Journal*, July 1851. T. R. B.

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55. *Nicotine.*—Great interest was excited at the Academy of Medicine of Paris, on the 4th of June, 1851. A case of poisoning by nicotine, occurring

in Belgium, was attracting the public attention everywhere. M. Orfila, with the zeal and ardour so characteristic of him, commenced a new series of investigations on a subject to which he had previously applied himself in 1840; and on the 20th May, he deposited with the Academy a memoir containing the results of his recent labours. But the position of the accused criminals (Bocarmé) required great reserve, since they were on their trial. M. Orfila delayed the publication, and hastened to Mons, in order to communicate with the distinguished chemist of Brussels (M. Stas), to whom had been committed the chemical examination on the trial. The moment has now arrived when he is justified in breaking silence. The administration of nicotine is confessed and proved, and the only points remaining for the jury to consider are the circumstances attendant on its exhibition.

The members of the Academy received the communication with deep interest and attention.

M. Orfila proposed to demonstrate—

1. That pure nicotine possesses characters as peculiar and marked as those which belong to mineral poisons.

2. That it is possible to detect its presence in the digestive canal, the liver, the lungs, and all the principal viscera, when it has been absorbed.

[Thus far, we quote from an editorial article. The following is taken from a reported sketch of M. Orfila's paper, in the same Journal:—]

In depositing with the Academy his memoir on the 20th May, he was unwilling to have it read, lest it might exert some influence on the case which was to be tried at Mons, eight days thereafter. This difficulty is now, however, completely obviated. I have attended the three first sittings of the Court of Assizes of Hainault, and have heard the questions put to the accused, and the testimony of several witnesses. It will not aggravate the condition of the accused, even if my memoir be published. M. De Bocarmé confessed that he had prepared the nicotine—that his brother had taken a notable dose of it, and from which he died suddenly. Again, it was not to be doubted that M. Stas had detected the poison in the body.

After describing the physical and chemical properties of nicotine, several of which had not been previously noticed, M. Orfila stated the experiments made by him in 1840, and now very recently, to determine its actions on the animal economy. It resulted from all these, that this alkali, when anhydrous, is extraordinarily active, as one or two drops are sufficient to induce the most grave intoxication, and indeed death in dogs to which it is given. One drop applied to the eye of a dog poisoned it so promptly and severely that it died in two or three minutes. When the poison was applied, the animals ran round the place where they were for a few seconds and seemed vertiginous, but they soon fell on the right side, and were seized with convulsions, at first light, but presently severe and tetanic. Death ensued in one, two, or three minutes, if the alkali was anhydrous, and in several minutes if it had retained a certain proportion of water.

On examination, the tissues to which the nicotine had been applied were found inflamed and altered, as they are from taking ammonia.

As to chemical results, M. Orfila announced that he had detected the poison in the liquids of the stomach, in that viscus, in the liver, spleen, kidneys, lungs, and indeed in the blood. To accomplish this, he has followed two processes.

First Process.—Macerate the suspected matter for some hours, in from 150 to 200 grammes of distilled water, acidified by three, four, or six drops of concentrated sulphuric acid. A soluble sulphate of nicotine is thus formed. Filter and evaporate by high heat, until the fluid is reduced to one-third, or one-fourth of its previous volume, and then again filter, in order to get rid of a notable quantity of organic matter, which is deposited during the evaporation. The liquor thus filtered is acid, but is rendered alkaline by pure caustic soda, and the sulphate of nicotine becomes sulphate of soda and nicotine. These are separated as follows: 1. Distil the liquor in a retort; condense the nicotine in a receiver plunged in cold water. The liquid thus collected is alkaline, and consists of water and nicotine. Add a very small proportion of ammonia, to prevent the decomposition of the organic matter, which still adheres to the dis-

tilled fluid. It is then only necessary, in order to obtain the nicotine perfectly pure, to evaporate by heat the nicotinized water; the ammonia and the water pass off, and the nicotine remains. 2. Or, pour sulphuric ether on the liquor rendered alkaline by soda. The ether dissolves the nicotine, without any effect on the sulphate of soda, and without sensibly dissolving the organic matter. Let the ethereal solutions be decanted off, and the ether allowed to evaporate spontaneously. Nicotine remains. This process is preferable to the previous one, in which heat is employed.

Second Process.—Macerate the suspected matter for some hours in sulphuric ether, which dissolves the free nicotine, and also that which has been changed to soap through the fatty matters contained in the organs. This saponification appears to be a constant occurrence. The fluid thus obtained is decanted, and allowed to evaporate spontaneously. A fatty product is obtained, which is to be frequently treated with caustic soda. The soap is thus decomposed, and the nicotine left free. This can be further purified by heat, as above directed, or, what is still better, treating it anew by ether.

M. Orfila gives the preference to the process in which the nicotine is saturated with sulphuric acid extremely diluted.

In the course of his memoir, the author did full and ample justice to M. Stas, Professor of Chemistry at Brussels. This gentleman had been charged by the government with the chemical examination of the body of Gustave Fouguies. He had detected (according to M. Orfila) nicotine in the tongue, the stomach, the liquids contained in the stomach, the liver, and the lungs. He had also discovered it in the boards of the floor of the dining room, although they had been washed with hot water, oil, and soap. M. Stas had experimented in a manner similar to that recommended by Orfila in his first process, except that he had used oxalic acid, instead of diluted sulphuric, and also had employed alcohol to get rid of organic matters.—*Gazette des Hopitaux; La Lancette Française*, June 5, 1851.

A brief sketch of the circumstances attendant on the above case may be here added for the information possibly of some of the readers of the Journal.

The Comte Bocarmé, although of noble birth, is represented to have been an insolent and cruel man, detested by the rural population where he resided. He married, in 1843, the only daughter of a merchant, who had an only brother of weak constitution—so weak, indeed, that from disease it had been necessary some years previous to amputate the right leg. It is well established that Bocarmé expected sooner or later to fall share to his wealth; and this was the more necessary, being profligate and reckless in his expenses, and having wasted the inheritance of his wife. Suddenly it was understood that Gustavus, his brother-in-law, was to be married, and that very shortly.

But all this was ended by the news of the death of Gustavus, at the Château of Bitremont, where the Count and Countess resided, and whither he had gone to dine with them. It was announced, and the lady to whom he was affianced was so informed by a messenger from the countess, that the sudden death was caused by apoplexy.

The appearances on the body, however, contradicted such an idea. There was distinct contusion on the front part of the neck; there were several marks of scratches on the left cheek; and on the left jaw was a corrosion affecting the epidermis, and evidently produced by a caustic liquid. And with all this, the tongue, the mouth, the throat, and the stomach, each bore sensible marks of the passage of such a substance.

The medical examiners were of opinion that a corrosive fluid had been forced into the mouth of Gustavus, and that the external injuries indicated the use of violence, and also the spilling of a portion of the liquid, which fell on the left jaw. Count Bocarmé also bore marks of bites on his left hand, and scratches on his fingers.

Chemical analysis proved that nicotine had been employed, and it was shown that the count had, for at least ten months previous, been engaged in preparing this substance. In Feb. 1850, he had applied to M. Loppens, Professor of Chemistry, in the Industrial School of Ghent, for information how to extract by chemical processes the essential oils of vegetables, mentioning, by way of

explanation of his curiosity, that he had, during his travels, observed American savages render their arrows poisonous with the juices of certain plants. He consulted Prof. Loppens particularly as to the manner of obtaining the essential oil of tobacco by distillation, and ordered an apparatus of copper for this purpose.

Some time after, he showed to Loppens a specimen of supposed nicotine, which was declared not to be that substance. He recommenced operations in the laboratory of the professor, and under his directions, and succeeded in obtaining two drops of pure nicotine. A second attempt at home was again unsuccessful. Loppens again renewed his instructions, and the criminal, on a third visit, informed the professor of his final success and of the most destructive effect of the substance on animals.

He did not stop with this, but purchased a more extensive apparatus at Brussels, and at last, after an uninterrupted labour of two days and two nights, succeeded in obtaining two phials full of nicotine. When he had accomplished this, he secreted the apparatus so effectually, that it was six weeks after the murder, and after a diligent search, that it was finally discovered.

This last, certainly, is not in accordance with the manner in which scientific researches are usually made. It was also proved that he gave himself a fictitious name to Loppens and other chemists, calling himself Borant.

It was also shown that the coachman had been sent on a frivolous errand to some distance from home; that the servant in waiting was ordered to leave the room, after a certain time; that a person was heard to fall suddenly on the floor, making piteous cries, and that these in a short time ceased.

It would certainly seem impossible but that the countess (the sister) was aiding and abetting in the poisoning, particularly as it required to be poured into the mouth to produce the effect. She, however, was acquitted, and the count condemned and executed.—*Gazette des Tribunaux*, May 28, 1851.

T. R. B.

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56. *On the Changes which Calomel undergoes in the Intestinal Canal.* By Dr. George V. Oettinger.—The author has published his researches in a thesis *at* Dorpat, and his experiments have led to the following conclusions: They establish, in the first place, the truth of Mialhe's statements, that calomel, when boiled with concentrated solutions of common salt, or of sal ammoniac, undergoes conversion, but only in a small proportion, into bichloride of mercury; red precipitate, on the contrary, forms a soluble oxychloride very readily with sal ammoniac, and sparingly with common salt, and also with the gastric juice. Metallic mercury and Hahnemann's oxide (an ammonio-subnitrate) undergo an almost unappreciable change with sal ammoniac, and only at a boiling heat; white precipitate undergoes the change with sal ammoniac at ordinary temperatures.

On the other hand, however, he found that the alkaline chlorides in the gastric juice were in much too minute quantity and too diluted to exert any obvious action on calomel, and that the gastric juice, even when it contained a much larger proportion of chloride of sodium than usual, remained without action on calomel and metallic mercury. Mialhe's experiments thus lose all value, in reference to the explanation of the *modus operandi* of calomel.

Lastly, Dr. Oettinger found that, after large doses of calomel, there were found in the stomach, and both the larger and smaller intestines, along with traces of inflammation of the mucous coat, always blackish grains and masses of sulphuret of mercury, and an increased proportion of biliary matter. The last is the cause of the green colour of calomel stools, and not the sulphuret of mercury, which can readily be distinguished from the green matter beside it. The increased secretion of bile shows itself also by the distension of gall-bladder.—*Quoted from a German Medical Journal*, in the *Monthly Journal of Medical Science for January*, 1851, *conducted by Drs. Christison, McClagan, Simpson, Robertson, and J. H. Bennet, and Messrs. Syme and Goodsir.* The editors subjoin the following:—

(We never had belief in M. Mialhe's hypothesis, which accounted for the passage of the insoluble calomel into the system by its being converted into the

soluble bichloride by the action of the alkaline chlorides in the gastric secretion. What we disbelieved on theoretical grounds, appears to be amply refuted experimentally by Dr. Oettinger.)

I made the following statement on this point, of course previous to the publication of the above (see "Medical Jurisprudence," ii. 587): "Mialhe, some years since, asserted that calomel could be converted into corrosive sublimate, by exhibiting some of the latter with one or other of the alkaline chlorides. This, again, has been denied by Lepage and D'Ollegrio, and at all events is still very doubtful. But, in his last edition, Orfila mentions the following: To an individual labouring under gastro-encephalitis, calomel in powder was given to the amount of eight or ten grains daily. He passed, by stool, a notable quantity of the black sulphuret of mercury, produced, doubtless, by the disengagement of sulphuretted hydrogen." T. R. B.

57. *On Bromine as a Toxicological Agent.* By Henry Wurtz, assistant in Yale College Laboratory.—Mr. Wurtz has not found, in the various toxicological writings, any suggestion as to the use of bromine for destroying the organic matter of stomachs.

An experiment with it was made upon a human stomach sent to the laboratory for examination. "The entire stomach with its contents, in the same state in which it was sent, was introduced into a porcelain dish covered with water, and about an ounce of bromine poured in. A gentle heat was now applied, much below the boiling point of water, and the stomach was turned over from time to time with a glass rod."

"When the stomach had entirely disappeared, which took place in less than half an hour, some hydrochloric acid was added, and the heat continued for a few minutes longer. The liquid was now ready for filtration, and left upon the filter only a few flakes of organic matter, together with a little fat, and that portion of the contents of the stomach which was insoluble in hydrochloric acid. It may be here noticed that a piece of paper which had been improperly wrapped around the stomach by those who sent it, and which could not be separated from it, also a cotton string, which had been tied around it by the same parties, were also completely destroyed by the bromine."

Mr. Kurtz observes that "especial care should be taken that this operation (the evaporation of the bromine) be performed in a strong draught, because the action of the bromine vapours upon the lungs and eyes is injurious beyond the ordinary belief. In case of accidental injury from this cause, the best antidote is inhalation of chloroform or ether."—*Silliman's Journal*, New Series, vol. xi. p. 405.

There is a case of poisoning by bromine in a late number of the "New York Journal of Medicine," which should be read in connection with the above. The article is so much used in the art of daguerreotyping, that physicians should inform themselves, so as to be prepared in case of accidents. T. R. B.

MISCELLANEOUS.

58. *On the Action of Water upon Lead.* By J. Birkbeck Nevins, M. D.—The effect of water upon lead has lately excited so much attention in reference to sanitary questions, and the suitableness of this metal for water pipes and cisterns, that whatever adds to our experience upon the subject is not without value.

Up to a very recent period, our knowledge has amounted, practically speaking, to the following:—

Lead pipes have been used for years, in many towns and in private houses innumerable for conveying spring water for internal consumption, and rain water for external purposes, without producing any injurious consequences; but occasionally accidents have happened which have called attention to what have then been considered exceptional cases, and the general impression amongst chemists and the public has been, that *hard* waters did not act injuri-

ously upon lead, whilst distilled water invariably, and soft waters generally, acted upon it in a dangerous degree.

In making this statement, chemists have, however, been aware that it was not the distilled water which acted upon the lead, but the oxygen of the air which happened to be dissolved into the water; in proof of which, lead has been kept for years in vessels filled with freshly boiled distilled water, and then hermetically sealed, without undergoing the slightest change.

The oxygen of the air combines with the lead, forming oxide of lead, which is separated from the surface of the metal by the slightest disturbance in the water, and leaves a fresh surface to be acted upon by further oxygen. The oxide thus formed combines partially with carbonic acid, also derived from the air, and forms carbonate of lead; and the white deposit, in the case of distilled water, is a variable mixture of oxide and carbonate of lead, in which, however, the proportion of carbonate is much smaller than that of oxide. In some experiments, which I made several years since, I found it to be 8.02 grains of carbonate, and 71.97 grains of oxide, or very nearly one part of carbonate to nine of oxide.

In proportion as water approaches distilled water in softness (purity?), it has generally been found to act upon lead. In the case, however, of *hard* water, the action has been different. *With comparatively few exceptions*, water owes its hardness to the presence of sulphate of lime in small quantities, and when this is dissolved in the water, oxide of lead is formed from the air as before, but, instead of being converted into carbonate, it is changed into sulphate by the sulphuric acid of the sulphate of lime, which adheres so firmly and uniformly to the surface of the lead as to form a protecting layer or varnish, which prevents the access of fresh oxygen. Nothing which has recently been discovered throws any discredit upon the experience of chemists thus far: but the general inference sometimes drawn from this, "that *hard* water protects lead, whilst soft water does not," is now disputed.

It is said that if all waters were hard from the presence of a *small* quantity of sulphate of lime, it might perhaps be true; but some are hard from the presence of soluble carbonate of lime or magnesia, and though a sulphate may protect the lead, a carbonate does not.

The late Prof. Daniell was consulted several (about six) years since, on this subject, and he found, from experiments published at the time, that soluble carbonate of lime did *not* protect lead, but, on the contrary, acted upon it with rapidity. About the same time, also, some cases of accidental poisoning arose from the employment of leaden cisterns for pickling tubs, in which the pickling brine was found to be strongly impregnated with chloride of lead, which, being a partially soluble compound, did not adhere to the lead and form a protecting layer.

So far, then, our knowledge appeared to extend until the attention lately bestowed upon sanitary questions brought up this subject, amongst others, for examination. It was known that distilled water acted rapidly upon lead, causing a rapid promotion of a mixed oxide and carbonate. It was known that, in innumerable cases, an average quantity of sulphate of lime in common hard water did protect the lead, and it was inferred, therefore, that the presence of a soluble sulphate would be a sufficient protection in any case. It was known, but not so generally, that a soluble carbonate of lime or magnesia did not protect lead; but this was practically looked upon as an unimportant exception to the safety which hardness confers.

It was known that chloride of sodium in solution acted upon lead; but the fact was little dwelt upon.

It has, however, lately been stated—

1st. That *hard* water does not protect lead so well as *soft* water.

2d. That, if even moderately hard water protects lead, very hard water, on the contrary, acts rapidly upon it.

3d. That magnesian salts are peculiarly injurious to lead.

4th. That water, hard from the presence of carbonates and chlorides, acts with peculiar rapidity upon lead.

I have therefore tried the following experiments to test these statements:

Sheet lead, and common lead piping, were exposed to the action of water containing the following solutions, with the results now to be described. In every case, the lead remained in the water for a week.

Description of Experiments.—In the first set of experiments, sheet and pipe lead were exposed to the action of a strong solution of sulphate of magnesia (grs. iv, and also grains x, to the ounce) in distilled water.

2d set. The same solution of sulphate of magnesia, combined with bicarbonate of soda (grs. iv to the ounce).

3d set. Carbonate of magnesia, partially redissolved by carbonic acid in distilled water.

4th set. Carbonate of lime, partially redissolved by carbonic acid gas in the same way.

5th set. Solution of common salt (gr. ½ to the ounce) in distilled water, and the same strength in the common spring water of Liverpool, which contains a moderate quantity of sulphate of lime.

6th set. Solutions of common salt, as above, only stronger (grs. ij in the ounce).

7th set. Solutions of common salt (gr. ½ and grs. ij in the ounce), in combination with gr. j and grs. iv of sulphate of magnesia, respectively; *i. e.* gr. ½ with grs. j, and grs. ij with grs. iv.

8th set. The same experiment, only substituting chloride of calcium for chloride of sodium.

Object of the Experiments.—It will be seen, on examining the above experiments, that nearly every point in dispute was brought under investigation; viz., the action of *hard* water, which does not contain sulphates, in experiments 3 and 4; the action of *strong* solutions of sulphates, in experiment 1; the modifying effect of the presence of excess of carbonic acid along with the sulphate, in experiment 2; the effect of chlorides of various strength, in distilled water, and in water containing small and large amounts of sulphates of both lime and magnesia, in experiments 5, 6, and 7; the difference in the effect of chlorides of equal strength, dependent upon difference in the base with which the chlorine is combined; and, lastly, the difference in the effect produced upon sheet lead, and common pipe lead.

Results—Different kinds of Lead.—The difference between the effect upon the sheet and the pipe lead was so slight in every case as scarcely to merit notice; if anything, the pipe lead was the least affected, as shown by the visible effect of sulphuretted hydrogen, for quantitative analysis was not resorted to in any instance. When, however, tea lead was operated upon, the difference was very great, which corresponds with results I obtained many years since, in which I found that, whilst the deposit from pure lead in a certain time weighed 5.5 grains, that from an equal surface of tea lead, placed under precisely similar circumstances, weighed 11.5 grains.

This result might almost be anticipated, as impurity in common pipe lead is more likely to be zinc than any other metal, and this would retard rather than hasten the action of the water upon the lead, by forming a galvanic arrangement; whilst the tin which is stated to be present in tea lead would hasten the action upon the lead, as it is less easily acted upon by chemical agents than lead itself. The difference in effect of the different strengths of the same solution was by no means strongly marked, the result being so nearly the same at the end of the week's trial, that it is unnecessary to make any distinction, in speaking of them, between the solution of four grains of sulphate of magnesia, and that of ten grains; between the half grain and the two grains solution of chloride of calcium, &c.

Sulphates.—The solution of sulphate of magnesia produced a very decided effect; the bottom of the jar in which the experiment was made became covered with a thick white layer, and a coating, similar in appearance, covered the surface of the lead, but was removed without difficulty by gentle scraping with the nail: on transmitting sulphuretted hydrogen, the white sediment became a black powder, and the water assumed a brown hue. Thus it was clear that the strong solution of the sulphate did not form a protecting layer upon the lead, though repeated experiments, year by year, shown to my class of chemical students, have con-

firmed beyond dispute that the Liverpool water, which contains a small quantity of sulphate of lime, does protect it. It appears to me that the difference in the effect of a strong and a weak solution of a sulphate is owing to the rapidity with which the precipitate is formed by the first, which prevents its adhering firmly, while in the second it is formed so slowly that its adhesion is uniform and perfect.

Carbonates.—All the carbonates acted upon the lead so far as to cause the water to become decidedly coloured by the sulphuretted hydrogen; and a dark-coloured deposit was formed amongst the superfluous carbonate of lime and magnesia. The effect from the bicarbonate of soda was the most decided, and this, notwithstanding the presence of a small quantity of sulphate of lime in the common spring water, and a large quantity of sulphate of magnesia in the distilled water; whence it is evident that neither a large nor a small quantity of a sulphate acts as a protection in the presence of a soluble carbonate.

Chlorides.—In every case the water became brown on the transmission of the sulphuretted hydrogen, but the solution of chloride of calcium was by far the most affected, and a decided coating was formed upon the lead in it, which was not the case in any of the solutions of common salt, in which the lead retained its ordinary appearance, and no precipitate was found upon the bottom of the jars. The effect of the chlorides was, therefore, less marked than that of the other solutions employed.

Conclusions.—From the above experiments, it is clear that hard waters do not protect lead, simply from the fact of their being hard, but that the protection, when effected, is dependent not only upon the nature of the salt causing the hardness, but also upon the proportion present; for, whilst all experience proves that a small amount of a sulphate, at any rate of a sulphate of lime, does protect the lead, a large quantity of sulphate of magnesia acted considerably upon it.

It appears, also, to be proved that chlorides act upon lead, whether with or without the presence of sulphates, but that their action is not so great as that of soluble carbonates, which produce a rapidly injurious effect upon the metal. At the same time, these results do not practically affect the question of the safety of using lead for common water, so far as sulphates, at any rate, are concerned; inasmuch as the solutions here employed were, out of all proportion, stronger than any ordinary spring water, and the experience of years has proved that there are no bad consequences practically occasioned by the employment of this metal for water containing sulphates.—*London Med. Gaz.*, June 1851.

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59. *Professor Faraday on Schönbein's Ozone.*—Professor Faraday, in a lecture delivered before the Royal Institution, June 13th, 1851, commenced by stating that considerable mystery was attached to the subject which he proposed to bring before the members on the present occasion, namely, *Ozone.** This name had been given by Schönbein, of Basle, to a substance or condition of matter which manifested itself under very peculiar and widely different circumstances. Schönbein regarded it as an independent body, and a constituent of the atmosphere; but in his (Professor Faraday's) opinion, it was nothing more than an allotropic condition of oxygen. It was never manifested except where oxygen was present, and where, at the same time, water, in a liquid or vaporous condition, was found. No substance had ever been separated from the atmosphere where ozone existed; but its presence was manifested, not merely by the strong smell peculiar to it, but by certain well-marked chemical properties which the atmosphere containing it possessed.

When electricity is produced from a powerful machine, and allowed to be discharged by a point, there is a feeling of a current or aura as of vapour escaping, and, at the same time, a remarkable odour. If, during the passage of the electricity, a piece of paper, moistened with a solution of iodide of potassium and starch, be brought near, the discharge causes the production of blue iodide of farina. The blue colour thus produced is the result of the oxidation

* Probably derived from ὀζώδης, "having a strong smell."

of the potassium by the *ozone*, and the setting free of the iodine. This is one of the best tests for the presence of ozone. It was formerly supposed that nitric acid was produced by the discharge of the spark, and that the decomposition of the iodide was occasioned by this acid as a result of the union of oxygen with nitrogen in the air: but this theory will not account for the smell and other properties of this extraordinary agent.

Schönbein produces ozone in very large quantities by introducing into capacious bottles, with glass stoppers, pieces of cut and cleanly scraped phosphorus, with a small quantity of water, so that the phosphorus may be partly in and partly out of the liquid. A vapour slowly rises in a current. After ten or twelve minutes the ozone is produced, and may be procured in a mixture with oxygen and nitrogen by removing the phosphorus at a water-bath, and thoroughly washing the interior of the bottle with water, in which ozone is insoluble. This body is thus separated from the vapour of phosphorus and phosphorous acid. (This experiment was performed in three bottles, and several bottles of ozone previously prepared were now brought forward.) On introducing paper, wetted with starch and iodide of potassium, into one of the bottles, there was an immediate indication of the presence of this principle, by the production of a dark blue iodide of starch. Another remarkable property possessed by ozone was seen in its bleaching powers. Some ounces of a solution of sulphate of indigo were gradually poured into a bottle containing ozone, and shaken, when the colour was as completely destroyed as if chlorine or chloride of lime had been present. A very small quantity of ozone would thus entirely discharge the colour of a very large quantity of sulphate of indigo.

It has been already stated to be so little soluble in water, that a bottle containing it may be repeatedly rinsed with water without losing its ozonic contents. If, however, the stopper be removed, and it is exposed to air, it soon passes off. Ozone appears to be entirely destroyed by heat; or, at any rate, its production by electricity ceases when sparks are received from a red-hot metallic point. This fact was ingeniously illustrated by insulating a small galvanic battery, capable of raising at pleasure a platina ball to full redness: the battery was made part of the machine, and the platina ball the terminal point from which the discharges of electricity were received. The machine was set to work, and it was clearly and distinctly proved by Professor Faraday that the discharges from the red-hot platina ball produced neither the aura, the smell, nor the decomposing effects on iodide of potassium and starch, which were immediately manifested when the ball was allowed to cool, and the electric fluid was then passed through it.

The oxidizing properties of ozone are indicated upon metals which in practice it is rather difficult to convert to oxides—namely, silver. A piece of polished silver had been placed in a bottle of ozone for several hours, and had acquired a distinctly brown tarnish, not from sulphur, but from a process of ozonation, or, in other words, oxidation. Polished lead similarly treated was also oxidized. Ozone had always a tendency to bring metals and metallic oxides to their highest degree of oxidation. In this respect it was the most powerful oxidizer that was known. A tube containing several rings of metallic arsenic had been placed for a short time in a bottle of ozone. The metal had entirely disappeared, and had become transformed into arsenic acid. Paper wetted with a solution of proto-sulphate of manganese was introduced into a bottle of freshly prepared ozone, and in the course of a short time black spots appeared over the surface, proving that the manganese had passed to a higher degree of oxidation.

Nitrogen and sulphur are easily oxidized by it. Schönbein succeeded in procuring a quantity of nitre (of which a crystallized specimen was shown) by the agency of ozone in contact with nitrogen (of air) and potash. Sulphur was also converted to sulphuric acid. Paper stained with sulphuret of lead was immediately bleached when exposed to an ozonic atmosphere. Some curious experiments of Schönbein's were now shown, in which portraits and inscriptions were seen in white letters on a dark ground, as a result of placing stencilled metallic plates on paper which had been stained brown by sulphuret of lead. The uncovered spaces had been exposed to light and air, or *insolated*.

The result was that in these spots the sulphuret of lead had entirely disappeared, having been converted to colourless sulphate of lead by the oxidizing action of ozone.

The alleged bleaching properties of solar light on coloured articles are thus probably due to the agency of ozone—in other words, to a process of oxidation and alteration of the colour.*

Sulphuretted hydrogen, phosphuretted hydrogen, and all foul effluvia, are speedily oxidized and destroyed by ozone. It is, therefore, the great purifier of the air; and, owing to its continual exhaustion by oxidating processes, it is difficult to discover the presence of ozone in large and populous places, or in close and crowded dwellings. In the open air of the country, and on the sea, it constantly exists in a proportion which is probably subject to great variation, although ruled by laws which are at present unknown. Schönbein had contrived an *Ozonometer* for testing the amount contained in air. It is prepared by immersing paper in a solution made of one grain of iodide of potassium, ten grains of starch, and two hundred grains of water. The paper is dried, and, when intended for use, is exposed for some time to the air. There is no change until it is wetted with water, when, if ozone was present in air to which it had been exposed, a blue colour will appear, the intensity of which varies according to the quantity of ozone present and the length of exposure. The ozonometer consists of a series of papers thus coloured in different degrees, and bears some analogy to the cyanometer long since proposed by Humboldt.

Professor Faraday stated that, during the last autumn, when at Brighton, while walking close to the sea-shore, he exposed some strips of this prepared paper to the current of air coming over the sea, and, on subsequently wetting the paper, the presence of ozone was distinctly manifested by the blue colour produced. On another occasion he received on the same paper the current of air blowing over the town, but no trace of ozone could be detected in it. When he went, however, on the windward side of Brighton, so as to catch the air blowing over the downs before it reached the town, ozone was strongly manifested by the result. It was thus established that in populous places there is a constant consumption of this principle.

It had been shown that ozone was evolved with the ordinary electricity of the machine: it was now proved that the current of the battery equally leads to its production. Water was decomposed by a Grove's battery, and the oxygen and hydrogen evolved were conducted through a tube in which cotton soaked in potash had been placed to arrest any traces of acid. The gases evolved at the end of the tube decomposed the iodide of potassium on starch paper, and gave the usual indication of the presence of ozone.

Ozone is evolved in numerous chemical processes. If pure ether, mixed with water, be introduced into a wide-mouthed capacious bottle, and the vapour allowed to become diffused, it will be found that litmus paper introduced is not reddened and that starch paper prepared with iodide of potassium is not rendered blue. If, however, a glass rod be made hot in the flame of a spirit-lamp, and then introduced into the vapour of the bottle, litmus paper held above the rod becomes strongly reddened, and the iodide of potassium paper intensely blue. In the oxidation of ether vapour at a low temperature, ozone is evolved.

Ether, in its ordinary state, has no bleaching properties; but the ether thus treated had acquired the power of discharging the colour from a large quantity of sulphate of indigo.

Essential oils are thickened by long exposure to light and air; they become ozonized and their properties changed. This was illustrated by reference to oil of turpentine. Freshly rectified and pure oil of turpentine was proved, by admixture with sulphate of indigo, to have no bleaching power. A small quantity of oil, which had been exposed to air and light (the air in a bottle half full), destroyed the colour in a few minutes, like chlorine.

* This hypothesis should have its correctness tested by the exposure of colours known to fade, in hermetically sealed tubes. Oils, it is well known, are bleached in close bottles; but they may contain air, and wherever there is air there is ozone, a very small proportion of which possesses remarkable powers of bleaching.

We cannot doubt that ozone exerts an important influence on the atmosphere, and, therefore, on the health of animals and vegetables. Schönbein, who is rather sanguine in his views, considers, from the irritant properties of ozone, that an undue proportion of it in air may give rise to epidemic influenza, bronchitis, and other affections of the air passages; and, in making experiments at Basle, he found that, concurrently with the prevalence of these disorders, ozone was very abundant in the air. On the other hand, it has been said that its deficiency in air will account for cholera or fevers, since the foul effluvia or miasmata giving rise to these diseases are not completely destroyed or removed by the oxidizing action of ozone. These, of course, are mere speculations, insusceptible of proof; but, in the mean time, it must be conceded that the subject opens a new road to experiment and observation, and that very important results may be obtained by following out Schönbein's researches.

[It would be difficult to describe the intense interest which this lecture excited in a large and crowded auditory. The illustrative experiments were most ingeniously contrived, and were remarkable for their novelty. The conclusions of the lecturer were fully justified by the results.

We think Mr. Faraday has afforded the right explanation in assigning the properties of ozone to an allotropic condition of oxygen. This extraordinary element, which forms by weight one-fifth of the atmosphere, eight-ninths of water, and one-half of the solid crust of the earth, may, like other supposed elements, be capable of existing in two states (allotropic) so widely differing from each other as to possess nothing in common excepting the name. Phosphorus presents this allotropic condition: in its ordinary state it is colourless, luminous in air in the dark, forming a deliquescent acid, is soluble in bisulphuret of carbon, and melts and burns at a very low temperature, about 108°. If phosphorus be kept for a time at a temperature between 464° and 482°, its properties are entirely changed: it acquires a brownish-red colour on cooling; it requires a high temperature for combustion; so that, unlike common phosphorus, it may be safely handled and carried in the pocket: it does not deliquesce in moist air, and is quite insoluble in bisulphuret of carbon. Liebig states that, while common phosphorus is poisonous, the altered phosphorus has no action on dogs. At a low red heat, the altered phosphorus is reconverted to and reacquires all the properties of ordinary phosphorus! There is, therefore, no apparent change of matter, but merely a change of state.

Thus Mr. Faraday considers that oxygen bears the same relation to ozone that ordinary does to altered phosphorus; that they may, under certain conditions, pass and repass into each other: but what those conditions are which produce and *regulate* the conversion of oxygen into ozone in the atmosphere it is impossible to say. Chemical agency, electricity, and magnetism may be the constant sources of production. Decay, disease, and death, affecting alike animals and plants, may be the means by which ozone or allotropic oxygen is consumed; but what power is it that *regulates* the quantity produced, and so adjusts it that it shall conduce to health and life? This is a profound mystery. It is obvious, from what is already known, that by an over-conversion of oxygen in the atmosphere into this allotropic condition, every living being would perish; and it is not improbable that the arterialization of blood may be due, not to oxygen in its ordinary, but in its allotropic state. It is commonly said that oxygen is absorbed as such, and the red corpuscles of blood are regarded as oxygen-carriers; but the researches of Schönbein open a new path of research for physiologists.

It has been a mystery whence those sulphates and nitrates are derived which are frequently found in freshly collected rain water that has only washed the atmosphere. Ozone may be the agent by which the sulphur-gases and ammonia that are diffused in the atmosphere become oxidized and transformed to acids and salts. Acid springs, which are found in some parts of the world, and the great nitre beds of Ceylon, and on the coast of Peru, may owe their origin to this allotropic influence in past ages, and still working slowly at the present time. Although ozone does not appear to be dissolved by water, it is a question whether the oxygen in that liquid may not assume an ozonic condition,

and thus account for the rapid conversion of nitrogen, sulphur, and phosphorus, or the compounds containing them, to nitrates, sulphates, and phosphates. Every chemist knows the rapidity with which sulphuretted hydrogen is decomposed in all kinds of water exposed to air: sulphur is precipitated, or, if a base be present, acidified, and a salt formed. Oxygen, therefore, either in its ordinary or allotropic state, is the great purifier of air and water.

Oxygen in combination may be frequently in the ozonic state, or may become so during its evolution. Chromic acid not only bleaches, but sets free, iodine from iodide of potassium. Peroxide of hydrogen and other hyperoxides have a similar action. Chlorine and bromine resemble ozone in their bleaching powers, and in their action on iodide of potassium. The bleaching is commonly referred to *nascent* oxygen, because dry chlorine has no such effect; but for the term nascent we may now, perhaps, be justified in substituting the word *allotropic*, and refer the effects to the ozonic condition of oxygen.

The oxidation of the metallic sulphurets by ozone throws a curious light on the probable cause of the destruction of photographic drawings. If any sulphuret of silver be left in the finished drawing, the drawing is slowly bleached, and the sulphuret converted into sulphate of silver. In drawings which have been framed, the change is observed to commence on the internal margin, and slowly spread to the centre. There are many other remarkable chemical changes which will now probably receive a more satisfactory explanation than has been hitherto assigned to them.]—*London Med. Gaz.*, June 1851.

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60. *On some Pathological Effects produced by Atmospherical Electricity.* By Prof. Schönbein. ("Proceedings" of Royal Med. Chirurg. Soc., June 24, 1851.)

After referring to the more obvious effects of electricity upon the organs of sensation, and more especially those of smell and taste, and stating his belief that the peculiar odour observed when an electrical discharge takes place, or in the neighbourhood of points from which electricity is passing, is not due to the electricity itself, but caused by the presence of a peculiar matter which he has named ozone, the author proceeded to lay before us the opinions held respecting it—viz., that either pure or atmospheric oxygen, when exposed to the action of electricity, is transformed into this odoriferous body, which he was at first inclined to consider a peculiar peroxide of hydrogen, but which other eminent chemists believe to be merely an allotropic modification of oxygen. With reference to its exact composition, he declines, however, to give a decided opinion. This body, whatever its actual nature may be, is a most powerful oxidizing agent, at ordinary temperatures, oxidizing silver, forming iodic acid from iodine, nitric acid from nitrogen; converting the acids ending in *ous* into those which end in *ic*, the salts which terminate in *ite* into those which end in *ate;* metallic sulphurets into sulphates. It decomposes the gaseous components of hydrogen, with sulphur, selenium, phosphorus, iodine, arsenic, and antimony, and exerts many other energetic chemical actions both on organic and inorganic substances. It has a strong electro-motive power similar to that of chlorine, bromine, and iodine; and lastly, it has certain physiological effects upon the animal system, similar to those of chlorine and bromine, acting powerfully as a poison, even in minute doses. Ozone is being constantly generated in the atmosphere by the electrical action going on. When in excess, it has a sensible effect upon the mucous membranes of those exposed to its influence, and its presence is indicated by starch containing the iodide of potassium being turned blue. The author has availed himself of this fact in the construction of his ozonometer, which consists of a box containing test-paper thus prepared, and a chromatic scale. He believes that certain catarrhal affections are produced by the presence of ozone in the atmosphere, and he has availed himself of the assistance of medical friends in ascertaining the co-existence of unusual prevalence of catarrh with what he terms his *blue days*, and he suggests that more extended observations are desirable for this purpose. The author then referred to the existence of poisonous miasmata in the atmosphere, which are generated by certain "purely chemical, or physical, or physiologically chemical actions," which take place within the earth, or its surface, in stagnant or running waters, or in the atmosphere itself. Of these poisonous gases or vapours, there are two

sorts which are antagonistic to and destroy each other. Of the first class, sulphuretted, and perhaps phosphuretted, hydrogen, alone are produced by natural causes, and these in such minute quantities that they do not, except in a few localities, exert any general influence upon animal life. Of the second class, there is one, namely ozone, which exists in appreciable quantities in the atmosphere. But the abundant source of gaseous matters is that which the decomposition of vegetable and animal substances affords. Some of these are well known, such as carbonic acid and ammonia; others are of unknown chemical nature, and though the absolute quantity of such deleterious matters may be small in comparison to the immense volume of the atmosphere, their accumulation would render the air unfit for the support of animal life, unless some agent were at work to neutralize or decompose them. The author states that the purification of the atmosphere which we attempt to effect on a small scale by chlorine fumigations, is accomplished in the great processes of nature by the agency of ozone, a task for which it is peculiarly fitted by its high oxidizing powers. He gives the details of some experiments upon air tainted by putrid flesh, which was purified by ozone disengaged by the action of moistened phosphorus. Ozone, which is formed in the atmosphere by the electrical discharges constantly going on, acts upon and decomposes the oxidizable miasmatic gaseous matters which contaminate it, and thus the atmosphere is preserved in a state fit for the support of animal life, and, at the same time, the ozone, which, if allowed to accumulate, would become deleterious, is in its turn neutralized or decomposed by the miasmata. During a thunder-storm large quantities of ozone are formed, and the author supposes that the unhealthy state of the atmosphere which exists in the hot season of the year may be caused by the accumulation of miasmata produced by animal decomposition; and that it is by the generation of ozone that thunder-storms purify the air. The author considers that there are probably certain states of the atmosphere in which the quantity of ozone does not bear a due proportion to the miasmata it has to act upon, and that under such circumstances it is that certain diseases—cholera, for instance —make their appearance. He is also of opinion that, in the winter, there is more atmospheric ozone than in summer, and that the higher strata of the atmosphere contain more than the lower; and as the generation of some diseases, such as the yellow fever, appears to be connected with certain seasons and geographical positions, he thinks that by an extended series of observations it might be ascertained whether these diseases bear any relation to the ozoniferous state of that portion of the atmosphere where they happen to occur. The paper concludes with a reference to experiments which prove that ozone produced by the action of electricity or by the agency of phosphorus is identical.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Wills' Hospital—Service of Dr. LITTEL—*Cases discharged from April 1st to July 1st*, 1851.

	Cured.	Relieved.
Acute conjunctivitis,	1	0
Chronic do.	3	0
Catarrhal do.	5	0
Strumous do.	9	0
Granular do.	12	1
Iritis,	9	0
Cataract,	1	0
Partial amaurosis,	3	2
Opacity of the cornea,	1	1
Ulcer of the cornea,	3	0
Corneitis,	3	0
Ophthalmia tarsi,	3	1
Injury of the eye,	1	0
Closure of the pupil—operation deferred.		
Adhesion of the lid,	0	1
Coxalgia,	0	1

Wills' Hospital Dispensary—cases treated:—

Acute conjunctivitis,	8	Tumour of the lids,	5
Chronic do.	21	Injury of the eye,	13
Strumous do.	26	Entropium,	3
Catarrhal do.	4	Partial amaurosis,	17
Granular do.	13	Fungus hæmatodes,	1
Purulent do.	2	Closure of the pupil,	2
Phlyctenular ophthalmia,	12	Neuralgia of the eye,	3
Pustular do.	5	Inflammation of lachrymal sac,	4
Rheumatic ophthalmia,	3	Obstruction of do	3
Ophthalmia tarsi,	14	Fistula lachrymalis,	1
Ulcer of the cornea,	13	Ptosis,	1
Particles of steel in cornea,	5	Pterygium,	3
Opacity of cornea,	9	Corneitis,	3
Cataract,	4	Staphyloma,	3
Iritis,	9	Diseases not ophthalmic,	9
		Total,	219

Constitutional Treatment.—In the management of *all* forms of ophthalmic disease, Dr. Littell makes it a primary object to attend to the general health of the patients, but especially in the management of the various forms of strumous ophthalmia, and bad cases of granular conjunctivitis. He proceeds, first of all, to restore to a healthy activity all disordered functions, and this

accomplished, he endeavours in strumous subjects to change the diathesis, and invigorate the system by free exercise in the open air, by a simple and nutritious diet, by the judicious use of the bath and by tonics, quinine and iron being preferred in most cases. In the treatment of those obstinate and intractable cases of chronic granular conjunctivitis, of which there are always so many in this hospital, he deems it all important to improve the general health and sustain the strength, while at the same time he employs such local astringent applications as are best adapted to each particular case, preferring, in using the nitrate of silver, generally the weaker solutions applied carefully to the inverted lids with a camel's hair pencil. The tonic which he prefers is quinine in connection with a generous diet and a moderate exercise in the grounds attached to the hospital, when the conditions of the eyes do not forbid too great an exposure to the light. (These patients are always exposed to as much light as they can bear without causing pain or irritation in the eye.) The cod-liver oil, so much used recently in the hospital, to correct the strumous diathesis and to improve the constitutional vigour in bad cases of granular lids, is not a favourite with Dr. L. He entertains the opinion that the results ascribed to this remedy are due to other causes—the discontinuance of irritating applications, the addition of a highly nutritive article to the ordinary meagre diet of a hospital, the season of the year, &c. &c.—and can be more readily obtained by less nauseous agents.

Iritis.—An unusual number of cases of iritis were treated in the hospital during this service of Dr. L. In the majority of the cases, the disease yielded readily to the usual plan of treatment, and when the cases came under treatment before the results of the disease had taken place, no permanent injury in any instance resulted to the eye. A few of the cases treated did not yield readily to the mercurial impression, and were only relieved after a protracted course of treatment, during which time other less efficient remedies were used as adjuvants to mercurials; the ultimate results in these more difficult cases were entirely satisfactory. It should be remarked here that it is an invariable rule in this hospital to keep the ext. of belladonna constantly painted on the brow and lids during the treatment of iritis, to obviate, if possible, a closure of the pupil. In the use of mercurials in the treatment of iritis, Dr. L. is extremely cautious; he finds that he can procure all the good effects of this essential remedy, while at the same time he avoids those injuries so often inflicted upon the constitution by its too free and indiscriminate use. He also finds that a careful perseverance in the use of mercurials, for a long time after active disease has subsided and left the pupil blocked up with lymph, does far more than is generally supposed to obviate the results of the iritic inflammation, and restore vision. This fact has been well illustrated recently in the hospital, in the person of a young married woman who was admitted in January last for the relief of the results of a syphilitic iritis which had run its course. When she came in, she was entirely blind, and in a miserably broken-down condition of the general health, and covered also with a syphilitic eruption. Dr. Parrish, who was then on service at the hospital, put her upon the use of the iodide of mercury, one grain three times daily, in combination with guaiac and lactucarium; this, in connection with a full tonic course, was continued for months, when the gums became a little swollen; as they did but two or three times, the mercurial was suspended for a day or two, and then resumed again. Her improvement was slow, but constant; the eruption faded, and the lymph gradually thinned away from the contracted pupil, and in February she could find her way about the ward; in March, she could distinguish objects without

much difficulty, and in April she could see to read large print. In June, when discharged, the pupil of the right eye was quite clear, and as large as that of a healthy eye in a good light. The left eye did not improve much; it is quite soft and flabby, and probably its internal tissues are in part disorganized.

Artificial Pupil.—Peter McCarty, an Irish labourer, æt. 30, of good constitution and fine health, was admitted to the hospital on the 10th of May last. One eye had been entirely destroyed and the other rendered sightless by an attack of inflammation which he suffered in the city of New Orleans. When he presented himself for admission at the hospital, the eye that remained had a dense opacity in the central portion of the cornea—the margin of the cornea was entirely clear. The pupillary margin of the iris for three-fourths of its lower circumference was adherent to the opaque spot; the upper fourth remained free, and left a minute opening through which the rays of light would pass when the lid was raised with the fingers. As the margin of the lid fell below this minute pupil, he was quite blind, when the lid was not raised up with the fingers, and even then he could not see distinctly enough to enable him to walk about with safety. Three attempts had been made by a surgeon in New Orleans to make an artificial opening through the iris, but without the slightest success, and he was given over to hopeless blindness; but, not satisfied to endure so hard a fate without another trial for relief, he determined to come to Philadelphia, and consult the surgeons at this hospital. He accordingly arrived here in May last, and Dr. L., not considering his case hopeless, admitted him, and in due time submitted him to the examination of his colleagues, who, after the usual consultation, concurred in the propriety of an operation. The eye being free from irritation, and the texture of the iris presenting a healthy appearance opposite that part of the inferior portion of the cornea which was transparent, Dr. L. determined to make an opening through the iris at that point. To accomplish this object, he introduced a small iris scalpel through the tissues of the eye about one line behind the iris, and carefully carried the point through it into the anterior chamber. This was attended with extreme difficulty, as the iris lay in close contact with the cornea, and there was therefore not space for the point of the scalpel in the anterior chamber; however, after prolonged and delicate efforts, the point of the instrument was finally carried through the iris, and onward between the iris and the cornea for two-thirds the width of the iris towards the inner canthus of the eye, the cutting edge of the knife turned so as not to wound the cornea. The scalpel was then withdrawn with a gentle pressure of the cutting edge against the iris, making, as it passed out, a free incision; the divided fibres retracted immediately, leaving a triangular opening as large as could be desired. No unpleasant symptoms followed the operation, and, in a few days after, the man was up and walking about the hospital and the yard, seeing his way distinctly. As the vision has remained the same since the operation in the early part of June until now, July 21st, it is inferred that the lens and its capsule were destroyed by the abortive operations in New Orleans. This man's vision, since the time he was out of bed after the operation until now, has been sufficient to enable him to do any kind of horticultural labour with the gardener, whom he has very industriously assisted since he has been able to see and to work. This case has a peculiar interest from the circumstance of its unpromising character in the outset, and from the complete success which followed a well-devised and skillfully executed operation.

Medullary Disease of the Eye.—Two cases of this formidable disease of the

eye have occurred in the Hospital Dispensary within the last two years. One has already proved fatal; the other is still under treatment. Andrew Galbrath, the patient first affected, a fine, healthy-appearing lad of six years, was brought to the hospital during the service of Dr. L., on the 9th day of April 1849, three weeks after the eye was first found to be diseased. The first defect noticed was an internal squint, and a partial failure of vision. When first presented at the hospital, the pupil was active and normal in size, but it had a brilliant appearance and amber colour. On looking through it into the interior of the eye, there was visible in the posterior part an adventitious mass of matter, consisting of thin distinct lobes, having the colour of yellowish lymph with a silvery lustre, and filling up almost one-fourth of the interior of the globe. There was still at this time a little strabismus, and some pain also in the temple and brow, with a slight redness of the conjunctiva. The pain and redness of the conjunctiva subsided after a moderate leeching, and did not again return until near the termination of the disease. The general health of the little patient seemed perfect, and continued so until the month before he died. Lugol's solution was ordered for him, gtt. v three times a day, and this he continued to take for five or six months. He was finally compelled to abandon this remedy, as the stomach would no longer tolerate it; no regular medical plan was adopted in its stead. The solution was resumed after a time, but the stomach continued to reject it, and it was finally left off entirely. While taking the solution, the disease remained stationary, and for a time seemed to recede; but, after it was abandoned, the mass in the interior of the eye began to increase slowly, pushing forward the lens against the iris, which ultimately became obliterated. In January, the mass had advanced to the cornea, and the whole globe was visibly enlarged; the sclerotica had become thinner, nodulated, and of a bluish-gray appearance. After this time the appearance of the eye underwent no further change; the cornea remained entire and transparent, and the lid was easily closed over it. In the early part of March, the general health, which had remained good, began to fail, and shortly after the vision in the other eye was lost, though the eye retained a healthy appearance, except, only, that the pupil remained dilated. Soon after this, he complained of pain in the head, became too feeble to walk about, lost his appetite, and inclined to be constantly on his back, pressing the back part of his head deep down in the pillow, moaning, and rolling from side to side; he was also wakeful, and extremely feverish and irritable. April the 1st, he had three slight convulsions, and in the evening of the same day he died. On examining the brain, a large oval tumour was found resting in the position of the chiasm of the optic nerves, involving the nerves of the diseased eye as far as the orbit, and that of the unaffected one for half that extent; posteriorly, it involved these nerves almost to the optic thalamus on the right side, and quite to it on the left; latterly and superiorly, it encroached on the anterior lobes of the cerebrum, and was greatly imbedded in them; the cerebral substance was softened where in contact with the tumour; the tumour was covered by the membranes of the brain, and probably originated in the substance of the optic nerve of the left side—the side of the diseased eye; it had a semi-solid consistence, was yellowish white and granular, and resembled tubercle when beginning to soften. The eye was not examined on account of the opposition of the parents. No disease was found in other portions of the brain.

Henry Coagan, the patient still under treatment, is seven years old, a native of the city; has a fair complexion, and a rather delicate constitution, though his general health seems good. The left eye is diseased, and

presents an appearance analogous to that of the other patient's eye when first seen; the only apparent difference consists in the uniform surface of the adventitious mass, it not appearing lobulated as in the other case. The vision is lost, but there is no pain, no redness, no dilatation of the pupil as yet, and no strabismus. He was first brought to the hospital on the 23d day of April last, and has been under treatment since then; he has been brought here now four times in all; the disease has, during this time, remained perfectly stationary; he has been kept steadily on the use of Lugol's solution and the syrup of the iodide of iron, three drops of the former and ten of the latter, given three times daily in the syrup of sarsaparilla.

A. F. MACINTYRE, *Resident Surgeon.*

Wills' Hospital, *July*, 1851.

Statistics of Mortality of Baltimore, Maryland, in 1850. By L. S. Joynes, M.D., of Accomack, Virginia. [Extracted from a letter to the Editor.]

Having already furnished you with detailed statements concerning the mortality of the city of Baltimore, during a period of fourteen years, ending with 1849 (which statement was published in the *American Journal* for October, 1850), I will seize the present opportunity to add a word in reference to the mortality for the year 1850. I am chiefly induced to do so by the fact that the decennial census taken in that year enables us to compare the mortality with the population.

The population of Baltimore, in 1850, as given in a publication, believed to be authentic, was as follows:—

White population		141,440
Free coloured "	24,668	27,614
Slave "	2,946	
Total		169,054

Thus it appears that the total population, in the decennial period 1840–50, increased very nearly sixty-five per cent.; the increase of the white population was but little less than seventy-four per cent., and that of the black population nearly thirty per cent.

The mortality for the year 1850, as given in the Annual Report of the Board of Health, was in the

White population		3,725
Free coloured "	641	900
Slave "	259	
Total		4,625

Excluding the still-born (415 in number), the deaths amounted to 4,210.

From this it is evident that, notwithstanding the vast increase of population which the census exhibits, the increase of mortality has been still greater. The deaths in 1850 are more than double the number of those in 1840, and by referring to the tables contained in my paper above referred to, it will be found that this disproportionate mortality was already remarkable in the year 1849, and one or two years preceding. Consequently, the *ratio of mortality to the population*, which I formerly gave, does not hold good for these more fatal years. The ratio for 1850 (excluding the still-born) was 1 in 40.13 of the general population; whereas, in 1840, it was 1 in 50.13; and for the nine years 1836–44, as determined by calculation, 1 in 45.42.

The causes of this excess become evident on referring to the detailed statement of the causes of death, given in the Reports of the Board of Health. I have no design at present to trouble you with the details of the tables for

1850, but will merely state that the deaths from *diseases of the bowels* of the *zymotic class* exceed those of any former years, at least since the beginning of the period which I have made the subject of investigation. The total number of deaths from these diseases—cholera morbus, cholera infantum, diarrhœa, and dysentery—was 651. The only preceding year in which their fatality at all approaches this high number was 1849, when the aggregate was 539. In 1848, the next most fatal year from these diseases, it was but 314. The increased fatality of dysentery is especially remarkable. Thus we find that, in the thirteen years preceding 1849, the deaths from this disease varied from 7 to 46 annually. In 1849 they suddenly rose to 148, and in 1850 to 237. So the deaths from diarrhœa, which had never exceeded 15 in any one year, amounted to 69 in 1849, and 40 in 1850, and those from cholera morbus, of which the annual maximum had been 9, amounted in those years respectively to 32 and 27. The deaths from cholera infantum (amounting to 347 in 1850) exhibit an increase more nearly according with the annual increase of population.

The year 1850 also exhibits a great increase of deaths from *small-pox*. Since the years 1845 and 1846, when 225 persons died of that disease, comparatively few cases of the disease had occurred, the deaths in the three years following numbering 1, 4, and 19 respectively, to which may be added 5 deaths from varioloid and varicella. In 1850, the fatal cases of small-pox amounted to no less than 145, while 8 are set down to varioloid, and 3 to varicella, making 156 deaths due to this group of diseases.

If the excessive mortality from the zymotic diseases which have been mentioned was deducted from the sum total of deaths for the year 1850, it would leave the ratio of mortality for that year almost exactly the same with that which I formerly gave as the average rate for the city of Baltimore.

On Henry's Magnesia. By DAVID STEWART, M. D., of Baltimore.

The physician is frequently asked, "Why Henry's Magnesia differs from the magnesia of the shops?"

I have instituted a series of experiments, which I may hereafter publish in detail, in order to prove that one defect in many (if not all) of the magnesia that is now put up in bottles as a substitute for Henry's Magnesia, is the presence of an appreciable quantity of lime, and that the magnesia called "Apothecaries' Hall," and other varieties of English magnesia, contain a considerable proportion of lime, sometimes amounting to three per cent.

In making the comparison with Henry's, I dissolved ten grains of each sample in about half a fluidrachm of sulphuric acid (previously diluted to measure half an ounce); this solution of magnesia was poured into a test tube, and then mingled gradually with half an ounce of alcohol (35° Baumé): the beautiful needles of sulphate of lime appeared abundantly in almost every specimen, including some of the American imitations of Henry's.

I have repeated the experiments, using an excess of acetic acid as the solvent, and oxalic acid as the reagent: the precipitate formed by oxalic acid under these circumstances was well characterized as oxalate of lime under the microscope, by the beautiful octohedra deposited from the dilute *acid* solution.

I should prefer the former test, and would suggest that it should be substituted for this, under the article "Magnesia," in our National Pharmacopœia, as Henry's will deposit a *few* crystals of oxalate of lime: and it is not expected that magnesia *for medicinal purposes* should be "*chemically* pure."

DOMESTIC SUMMARY.

Experiment of introducing Cancerous Matter beneath the Integument of a Frog.—Dr. Leidy stated to the Academy of Natural Sciences that he had repeated the experiment of introducing cancerous matter beneath the integument of a frog, which was first announced to the Academy, May 6th.

The cancerous matter was a fragment of encephaloid, taken from a female after death, by Dr. Henry H. Smith. It was almost as soft as cerebral substance. Beneath the microscope it exhibited a structure of very delicate organic cells, containing numerous granules and one or two nuclei.

A portion three-fourths of an inch long, by one-fourth of an inch broad, was inserted under the skin of the back of a frog, on May 8th, 34 hours after its removal from the body of the female. This frog, still living, Dr. L. exhibited to the members, and by an incision through the integument, presented to view the fragment of cancer, which had been introduced, and which had not only formed a vascular attachment to the integument, but for one-half itself was of a fine red colour from the net-work of capillaries which had become developed within it. The fragment had not increased in size. A number of its structural cells remained unchanged, but others had broken down into granular masses.

Dr. L. observed, the experiment not only proved the independent vitality of tissues, which was generally admitted, but also rendered it exceedingly probable that cancer was inoculable, for as, in the experiments, the cancerous fragments continued to live when introduced into cold-blooded animals, they would probably not only continue to live when introduced into warm-blooded animals, but would grow or increase in size.—*Proceedings of the Academy of Natural Sciences*, Phila., June 17, 1851.

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New Method of preventing Fats and Fixed Oils from becoming Rancid.—Dr. C. W. Wright, of Cincinnati, states (*Western Lancet*, Sept., 1851) that one of the early settlers of Ohio mentioned to him the following curious manner in which the Indians preserved bear's fat from becoming rancid: In the early part of winter, the fat is removed from the body of the animal and subjected to the *trying-out* process, as it is termed; that is, it is subjected to a degree of heat sufficient to coagulate and separate the azotized matter which subsides to the bottom of the vessel, and the oil is drained off. After this operation is completed, it is melted again with the bark of the slippery elm tree (*ulmus fulva*), finely divided, which may be used either in the fresh or dry state. The proportion is about one drachm of the bark to the pound of fat. When these substances are heated together for a few minutes, the bark shrinks and gradually subsides, after which the fat is strained off and put aside for use.

The bark communicates an odour to the fat that is hardly to be distinguished from that of the kernel of the hickory nut.

Thinking this might be turned to account in the preservation of the fatty matters, Dr. W. subjected many of them to experiment, and in every instance the result was alike successful. One specimen of butter (an article which, it is well known, becomes rancid sooner than any other kind of fat), prepared in this way more than a year ago, is as sweet and free from disagreeable odour as on the day it was made, having been exposed all this time to the atmosphere and changes of temperature.

Hog's lard may be preserved in the same manner.

This fact will be of much importance in the preparation of cerates and ointments, which can be thus protected from rancidity.

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On a Peculiar Appearance of the Tongue in Malarial Diseases.—Dr. Thos. C. Osborne, of Erie, Ala., states (*Western Journ. Med. and Surg.*, Aug. 1851) that he has remarked an appearance of the tongue which reveals the presence of malaria in the system, in time to enable the physician to remove it before it has exerted any seriously deleterious influence.

"For several years past," he says, "my attention has been attracted to this peculiar condition of the tongue, which, from its invariable position and presence

in the diseases and predispositions generated by miasma, may be appropriately denominated the *malarial margin.* As the name imports, it is an essential departure from the normal aspect of the edge, constituting a distinct lateral boundary of the tongue, occupying more or less surface according to the charge of infection in the system. Ordinarily, the colour amounts only to a very faint bluish tinge, which is liable to be lost, or merged in the various tints imparted to the tongue by various diseases. The most fixed condition of this symptom is an appearance of indentation or crimpling transversely, which is apparently confined to the subjacent tissue, while the superficial tegument is moist, smooth, and transparent. In a word, it seems to be a continuation or encroachment of the inferior surface upon the superior and lateral borders of the tongue, greater as we approach the root of that organ.

"My opportunities for noting this appearance of the tongue have been ample during several years, among a considerable population, composed of the white, black, and mixed races permanently residing upon the banks of the Warrior River (in sandy as well as the prairie regions), and in many individuals from other and different sections of this and the surrounding states; and I can truly say that in no instance has it ever failed to inform me correctly of the agency which the remote cause of fever had begun to exert in each individual case. After being once recognized, it is not easily mistaken, and from pointing it out so frequently to non-professional persons of my acquaintance, many of them have become as thoroughly convinced of its significance as myself, and call it, very properly, the "fever tongue." I have frequently, upon seeing a well-defined instance of the malarial margin, predicted fever within a month, and although the individual would be disposed to smile incredulously, and boast of excellent health, the result has generally created in their minds and bodies a different sensation.

"The fidelity of this symptom to the source of its origin is, under all circumstances, fully equal to the importance which I have attached to it. In a considerable number of cases of the different forms of dropsy, neuralgia, and inflammation, it has alone enabled me to reach a correct diagnosis, when every other symptom seemed to deny the agency of malaria in the case. Wherever seen, I have invariably assumed that there existed a tendency to intermittent disease, and upon watching the progress of the case, have as invariably detected this condition. In numerous cases of pulmonary inflammation, where the fever seemed continued, the cough unabated, the oppressive respiration persistent, and the pulse unvarying in its activity, the physical signs have designated with great accuracy the periods of repose and excitement in the course of the disease. In the gastric and intestinal phlogoses, again, whether as causes or consequences of fever, if this peculiar impression is seen upon the tongue, no apprehension need be felt in the administration of quinine, however malignant the case may appear. Here also intermission, varying in degree according to the severity of the disease, is always present, and, generally speaking, the shorter the period of repose the greater the quantity of medicine required, and *vice versâ*. I have not hesitated, in many cases, where the disease was marching rapidly to a fatal termination, to prescribe one, two, and even three drachms of sulphate of quinine at a dose, to be repeated according to the urgency of the indications. Gastro-enteritis, as a complication in the autumnal fevers of our section, is by no means uncommon. On the contrary, in the limits of my practice it exists in a majority of cases. At the present time there prevails on both sides of the Warrior an epidemic diarrhœa, as symptomatic of mucous irritation, which, in a number of instances, resists all the usual remedies given in such cases, but yields readily to repeated doses of quinine, and the daily use of the cold dash. The most active of these cases present unmistakable evidences of gastro-intestinal inflammation of a high grade; but in no instance have I failed, on a close examination, to recognize a quotidian or tertian form of intermittent, and in no instance has the malarial margin been absent from the tongue.

"My tabular report of the diseases of the last month exhibits diarrhœa as the prevailing type of disease, and by reference to that paper it will be seen that there have occurred to me twenty-five cases, in individuals varying in age from three months to sixty years; as respects the treatment, the whole number may be divided as follows, viz.:—

"Of those between the ages of three months and ten years, six required quinine and the cold bath, while five yielded to the administration of opiates and astringents; and of those over ten years, twelve demanded quinine and the cold dash, while only two yielded to opiates and astringents.

"Some of these cases were of an alarming character, and my conviction is that their favourable termination is due to the use of quinine, which I was at first led to administer by the malarial tongue. During the last four years, our country has been visited by an unquestionable form of typhoid fever, and in not one of the cases of this disease which I have seen, has the tongue exhibited the malarial border, but has appeared as if scalded in patches. But the semblance of typhoid fever is assumed by many cases of the autumnal disease, in which, but for this symptom, much apprehension might be entertained, and much valuable time lost to the physician in the treatment, for it is well known that quinine is actually injurious in all stages of the typhoid fever, while in those cases merely wearing its livery, that remedy is not only useful, but essentially necessary to the cure of the disease.

"If the malarial margin were useful only in unmasking this form of disease, its value would be inestimable; but when it points out with equal certainty all other varieties of disease in which miasma exerts a predisposing agency, it becomes a phenomenon of the greatest importance.

"It is not easy to exaggerate the value of a sign by which we detect the operation of the poison in its inception, and are conducted to the true method of suppressing it."

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Femoral Aneurism cured by Compression.—Dr. H. N. Bennett, of Bethel, Ct., relates (*New York Journ. Med.*, July 1851) the following interesting case:—

"Thomas J. Elwell, a blacksmith, 30 years of age, during the winter of 1842–3, suffered from pain about the knee-joint, which he supposed to be of a rheumatic character, and applied only domestic remedies for its relief. After a walk of twenty-two miles over frozen ground, the pain and lameness of the knee increased to such a degree, that he consulted me in reference to it. Upon examination, I immediately detected a pulsating tumour in the popliteal region, nearly the size of a hen's egg, and having all the characteristics of aneurism. This was in the month of March, 1843. At the end of five or six weeks from this date, the tumour had increased considerably in size, so much, that I advised my patient to submit to ligation of the femoral artery at once, as the nature of the difficulty could not be doubtful, and as I had at that time little confidence in any other mode of treatment. Feeling unwilling to endure a surgical operation, he soon went to New York for further advice. He consulted Drs. Mott and Rogers, who both gave him the same opinion which I had done, and urged him to remain at the New-York Hospital for operation. He then passed over to Staten Island on a visit to his friends, where he consulted some physician, whose name I cannot recall, who also pronounced it a case of aneurism, but recommended him to try the effects of pressure upon the tumour. He returned home, and commenced the application of pressure, *himself*, by bandaging the limb from the toes to the knee, and placing a compress of folded cloth directly upon the pulsating tumour. He persisted in this course for two or three months without the least benefit, when he determined to substitute a firmer compress. Instead of folds of cloth, folds of *sheet-lead* formed the nucleus of his compress, which was applied in the same manner as before. I called upon him occasionally to watch the progress of his treatment, and, after the end of ten days after the application of the lead compress, I found him suffering much pain in the knee-joint, from the severe pressure which he had made, but no diminution in the size of the tumour or the force of the pulsations, the latter being readily felt through the compresses when applied with all the force which he could endure. I advised him to discontinue what I considered a hazardous proceeding, and to abbreviate his sufferings by submitting to the usual operation. Notwithstanding, being a man of very strong resolution, he determined to pursue this course still longer, and abide the issue. At this time, however, he threw aside the lead compress, and filled its place with *a ball of caoutchouc*, which he bound upon the tumour with all the force he could endure. Not long after, perhaps two or three weeks, I called again to see him,

and was much surprised, upon examining the limb (which he exhibited with no little triumph), to find the tumour much diminished in size, and the *pulsation gone.* I could also distinctly feel several arteries pulsating about the knee-joint, evincing an increased development of the anastomosing branches of the femoral. From this time, the tumour in the popliteal space was gradually absorbed, and at the end of a few months had entirely disappeared."

Case of Hermaphroditism.—Dr. Jno. Neill communicated to the College of Physicians the following curious example of hermaphroditism, in a black brought to the anatomical rooms of the University of Pennsylvania:—

She dressed as a female, and was apparently twenty-five or thirty years of age, judging by her teeth and general appearance. Very little information could be obtained concerning her habits and propensities. She resided among the degraded blacks in the lower portion of the city, and died from drunkenness and exposure, according to the verdict of the coroner's jury.

From a superficial view of the pelvis and genitals, almost any one would have pronounced the subject to have been a *hypospadic male,* notwithstanding the large mammæ and the want of hair upon the face.

The breadth of the shoulders compared with the narrowness of the hips, and the form and development of the limbs would, alone considered, have indicated the male sex.

The representative penis was five inches in length, and one inch in diameter; and the skin, prepuce, glans, corona, fossa navicularis, and orifice of the urethra presented an appearance like that of a penis. But, by lifting up or turning aside the penis, it was found that the fossa navicularis was split, and that the urethra was wanting. In the place of the urethra there was a groove reaching from the glans penis to an oblique opening in the perineum. The cuticle lining the groove was thin and shining; it was also deficient in pigmentary cells. On each side of this groove there was a fold of skin commencing near the middle of the side of the penis, and stretching around the perineal orifice. The interior of this fold showed it to be the analogue of the nymphæ or corpus spongiosum.

The perineal opening was the commencement of a passage common to the bladder and vagina, and its diameter was equal to that of a common-sized catheter, although the orifice appeared much larger, owing to its obliquity.

The scrotum existed upon one side only. It was corrugated with transverse rugæ, and covered as usual with hairs and sebaceous follicles. To the touch it gave the idea that it contained two hard bodies.

Internal Organs.—These were completely female, though not perfectly developed. The dissection was commenced by opening the abdominal cavity, and the contents of the pelvis were examined in connection with the external parts.

The bladder was natural in position and size. There was no prostate, and the urethra was about one inch in length, and opened into the perineal passage.

The uterus was small, but symmetrical; to its sides were attached the broad ligament, holding it in its proper relation to the rectum and bladder.

The Fallopian tube of the right side had no free and fimbriated extremity, but terminated in a sac which was adherent to the ovary.

The ovaries were small, spherical, and corrugated; a section exhibited the usual fibrous tissue and vesicles.

The right round ligament of the uterus was exceedingly thick, and appeared to be muscular; but, upon examination with the microscope, it was found to be composed of white and yellow fibrous tissue. It reached to the bottom of the scrotum, where it was firmly attached.

The *scrotum* contained an irreducible omental hernia, probably congenital. The hernial sac contained also a small hardened mass, which was supposed to be a representative testicle, but it contained no true glandular structure or excretory tube. The vagina was of the proper length, but extremely narrow, especially where it approached the perineal orifice.

The above case would be classified under the head of "*spurious hermaphroditism*" in the female, according to Professor Simpson's article on this subject in the *Cyclopædia of Anatomy and Physiology.*—*Quarterly Summary of Transactions,* N. S., Vol. I. No. 3.

INDEX.

A.

Abbot, emphysema of face and neck, 81.
Abdomen, punctured wound of, 235.
Abscess of mons veneris, 86.
——— head of tibia, 118.
Adams, injury of shoulder-joint, 266.
African cranium, temporal ridges of, 278.
Air in liver, 485.
Albuminuria and amaurosis, connection between, 274.
Alley, poisoning by strawberries, 368.
Amaurosis, connection of with granular degeneration of kidneys, and protrusion of eyeball, 274.
American Medical Association, 282.
Ammonia, oxidation of in human body, 213.
Amnesia, 281.
Amputation, cures of, 313.
——— at shoulder-joint, 370.
Anæsthetic agents in surgical practice, 488.
Anæsthetics, local, 474.
Anasarca in disease of the heart, 481.
Aneurism treated by compression, 197, 228, 278, 500, 501, 557.
——— of arch of aorta, 75.
Animal magnetism, 434.
Antiseptics, 473.
Aorta, aneurism of arch of, 75.
Apoplexy, pathological appearances in, 266.
——— and softening of the brain, 51.
Appendix vermiformis, gangrene of, 369.
Aran, local anæsthetics, 474.
Arneth, obstetric practice of Vienna Lying-in Hospital, 513.
Arsenic, regulation act for sale of, 534.
——— cases of poisoning by, 262.
———, death from external application of, 259.
Articulation, loss of power of, 66.
Astragalus, excision of, 512.
Atropine, preparation of by chloroform, 214.
Augend, antiseptics, 473.

B.

Baltimore, statistics of mortality, 552.
Baly, absence of pericardial sacs, 471.
Barclay, statistical report on diseases of the heart, 480.
Barker, difficulty in diagnosis of pleuritic effusions, 482.
Baskin, nausea and vomiting as a sign of cardiac polypus, 404.
Beale, laws of health, 453.
Beales, cases of ovariotomy, 511.
Bell, treatment of erysipelas by muriated tincture of iron, 482.
Bellingham, popliteal aneurism treated by compression, 500.
Benjamin, absence of sternum, 209.
Bennett, pathological appearances in strangulation, &c., 266.
———, femoral aneurism cured by compression, 557.
Bernard, recent discoveries in physiology, 30, 337.
——— and Pelouze on Woorara poison, 214.
Bethune, spontaneous reclination of lens, 83.
———, abscess of mons veneris, 86.
Bigelow, loss of power of articulation, 66.
Bird on Urinary Deposits, 447.
Bladder, rupture of, 78.
Boling, fatal effects of tartar emetic in pneumonia, 330.
Bonnet, extirpation of neuroma without injury to nerve, 238.
Bowditch, enlargement of liver and spleen, 72.
Brain, softening of, 51.
Bright's disease of kidney, 373.
Bromine, as a toxicological agent, 540.
Brown-Sequard, persistence of vital properties in limbs in a state of cadaveric rigidity, 472.
Bruecke, new muscular system in mucous membrane of stomach, 206.
Burnett, microscope and renal affections, 373.
———, tissue and its retrograde metamorphosis, 22.
Butcher, treatment of stricture of urethra with gum-elastic catheters, 239.
———, dislocation of clavicle downwards, 244.
———, traumatic tetanus treated by chloroform, 498.

C.

Cabot, rupture of uterus, 69.
———, keloides in a child, 71.
———, urticaria from hyoscyamus, 369.
Cæcum, ulceration of, 65.
Calomel, changes which it undergoes in the intestinal canal, 539.
Cancerous matter, introduction of under integument of frog, 555.
Cane, tracheotomy in epilepsy, 484.
Cardiac polypus, nausea and vomiting as a sign of, 404.
Carpenter's Principles of Physiology, 448.

Carriere, climate of Italy, review of, 141.
Caspar, some points of medical jurisprudence, 533.
Chassaignac, serious hemorrhage from excision of tonsils, 511.
Chloric ether as a disinfecting agent, 86.
Chloroform, fatal effects from, 271.
——— in gonorrhœa, 249.
——— in traumatic tetanus, 498.
———, topical application of, 112.
Chomel, anasarca in disease of the heart, 481.
Chylous urine, 210.
Clavicle, dislocation of downwards, 244.
Climate of Italy, 141.
Coale, aneurism of arch of aorta, 75.
——, colic simulating pleurisy, 67.
——, extensive mammary inflammation, 86.
——, gout, 75.
——, hydrocephalus, 364.
Cod-liver oil, supposed cases of phthisis treated with, 88.
——— oil in gaol cachexia, 483.
——— oil in scrofulous affections, 276.
Colic simulating pleurisy, 67.
Collodion in ingrowing nail, 499.
——— to prevent pitting in variola, 66.
Collyria, Jacob on, 249.
Compression in aneurism, 197, 228, 278, 500, 501, 557.
——— of skull of infant during birth, 254.
Cooking and preserving meat, 211.
Coste, gestation, 265.
Craigie, general and pathological anatomy, 463.
Creasote in diarrhœa, 227.
Crisp, kousso in tænia, 484.
Croup, membranous, 74, 85.
Crystalline lens, spontaneous reclination, 83.
——— dislocation of, 84.
Cummins, stricture of œsophagus, 409.
Curling, Diseases of Rectum, 468.

D.

Dandelion, mode of preparing juice of, 474.
Dartnell, femoral aneurism, 228.
Davis, History of Medical Education, 451.
Debrou, congenital obliteration of vagina and neck of uterus, 238.
Delivery, rapid, 259.
Diarrhœa as a symptom of menstruation, 257.
———, creasote in, 227.
Diaphragmatic hernia, 512.
Didama, poisoning with oxalic acid, 532.
Disinfecting powers of chloric ether, 86.
Dislocation of clavicle downwards, 244.
——— of crystalline lens, 84.
——— of shoulder-joint, post-mortem appearances, 246.
Donaldson, Bernard's recent discoveries in physiology, 30, 337.
Donovan, mode of preparing juice of dandelion, 475.
Durkee, contributions to practical dermatology, 100.
———, syphilitic ulcer, and syphilitic tubercular eruption, 371.
Dysentery, pathology of epidemic, 305.
——— chronic, 366, 367.

E.

Ear, affections of which produce disease of the brain, 499.
Eclampsia nutans, 487.
Eczema impetiginodes, 100.
——— mercurialis, 100.
Electricity, some pathological effects of, 547.
Elkington, four cases of ovariotomy, 508.
Ely, supposed cases of phthisis treated with cod-liver oil, 88.
Emphysema of face, neck, &c., during labour, 81.
Epilepsy, tracheotomy in, 484.
Erysipelas, contagiousness of, 78.
———, constitutional origin and treatment of, 225.
———, treatment of by muriated tincture of iron, 482.
Eustachian valve, uses of, 96.
Exanthem, new epidemic, 486.

F.

Faber, eclampsia nutans, 487.
Faraday on ozone, 543.
Fats, method of preventing their becoming rancid, 555.
Femoral aneurism, 227, 228.
Femur, intracapsular fracture of neck, 68.
Field, punctured wound of abdomen, 235.
Fife, fungoid tumour of orbit, 253.
——, melanotic tumour of orbit, 254.
Fleming, application of anæsthetic agents to surgical purposes, 488.
Fracture, intracapsular of neck of femur, 68.
Fractured vertebræ, 68.
Fragilitas ossium, 248.
Freney, strangulation in utero, 261.
Frick, pathology of epidemic dysentery, 305.
Froriep on electro-magnetism as a therapeutical agent, 470.
Fungoid tumour of orbit, 253.
Funis umbilicalis, immediate division of, 82.

G.

Galvanic cataplasms, 477.
Gaol cachexia, cod-liver oil in, 483.
Gestation, 265.
Gonorrhœa, chloroform in, 269.
Gout, cure of, 75.
Gratiolet and Cloez, poisonous properties of milky humour secreted by cutaneous pustules of toad, 532.
Gray, otorrhœa, 364.
Gregory, protective power of vaccination, 219.
——— on Animal Magnetism, 434.
——— on eruptive fevers, 455.
Gross, diseases of bladder and urinary organs, 415.
Guersant, ovary removed for a labial cyst, 511.
Guthrie, treatment of strictures of the urethra, 507.
Guy, value of vaccination, 215.

H.

Hall, on threatening of apoplexy and paralysis, 171.
Halpin, ligature of external iliac artery, 230.
Hanging, pathological appearances in, 266.

Hays, connection of amaurosis with albuminaria and protrusion of eye ball, 274.
——- cod-liver oil in scrofulous affections, 276.
Hayward, cases of vesico-vaginal fistula, 196.
Hearing, exaltation of, in paralysis of facial nerve, 225.
Heart, statistical report on diseases of, 480.
—— anasarca in diseases of, 481.
Henry's magnesia, 554.
Hermaphroditism, 558.
Hernia, operation without opening sac, 231.
Hewitt, dissection of a case of popliteal aneurism treated by compression, 505.
Hildreth, chloric ether as a disinfecting agent, 86.
Hilton, popliteal aneurism, treated by pressure, ligature of artery, 503.
Hip-joint, amputation at, 313.
Hoffman, diminution of weight in new-born infants, 533.
Homans, membranous croup, 74.
Homeria collina, poisonous properties of, 536.
Hun, amnesia, 281.
Hydrocephalus, 364.
Hyoscyamus, urticaria from, 369.
Hypospadias, 79.

I.

Internal iliac, ligature of, 227.
Iris, wounds of, 370.
Italy, Carriere on climate of, 141.

J.

Jacob on collyria, 249.
Jones, chylous urine, 210.
——, oxidation of ammonia in the human body, 213.
Joynes' statistics of mortality of Baltimore, 553.

K.

Keloides in a child, 71.
Kesteven, creasote in diarrhœa, 227.
Kobelt, parovarium of female, 209.
Kousso in tænia, 484.

L.

Labour, emphysema during, 81.
Lacerta salamandra, poisonous properties of milky humour secreted by cutaneous pustules of, 532.
Landouzy, exaltation of hearing in paralysis of facial nerve, 225.
Larynx, polypus of, 227.
Lassaigne, experiments on pancreatic fluid, 207, 208.
Lawrence, therapeutical application of electro-magnetism, 470.
——, popliteal aneurism treated by compression, ligature of femoral artery, 501.
Laycock, new epidemic exanthem, 486.
Lead, action of on water, 540.
Lee, inflammation of veins, 484.
Leidy, introduction of cancerous matter beneath integument of frog, 555.
Liebig, cooking and preserving meat, 211.
Ligature, internal iliac, 227.
——— external iliac, 230.
Linton, outlines of general pathology, 454.
Liver, air in, 485.
——- and spleen, enlargement and disease of, 72.

M.

Maclise's Surgical Anatomy, 445.
Magnesia, Henry's, 554.
Malarial diseases, peculiar appearance of tongue in, 555.
Mammary inflammation, 86.
May, cases of amputation, 313.
McClintock, causes and treatment of secondary hemorrhage after parturition, 529.
McCready, rapid delivery, 259.
———- death from external application of arsenic, 256.
McIntyre, report from Wills' Hospital, 273, 549.
McSherry, surgical cases, 118.
Meat, cooking and preserving, 211.
Medical colleges, statistics of, 283.
Medical evidence in favour of and at the request of prisoner, 260.
Melanotic tumour of orbit, 254.
Membranous croup, 74, 85.
Menstruation, diarrhœa as a symptom of, 257.
Meynier, collodion in ingrowing nail, 499.
Moir, mode of inducing premature labour, 516.
——, epidemics of puerperal fever, 518, 521.
Molluscous tumour in external ear, 486.
Molluscum, 396.
Morland, extracts from records of Boston Society for Medical Improvement, 65, 364.
Mucous membrane of stomach and intestines, new muscular system in, 206.
Muriated tincture of iron in erysipelas, 482.
Muscular system, new, in mucous membrane of stomach and intestines, 206.

N.

Nail, collodion in ingrowing, 499.
Neill, temporal ridges of African cranium, 278.
——, hermaphroditism, 558.
Neuroma, extirpation without injury to nerve, 238.
Nevins, action of lead on water, 540.
New-born infants, diminution of weight in, 533.
Nicotine, poisoning by, 536.

O.

Œdema of glottis, tracheotomy in, 236.
Oettinger, changes which calomel undergoes in intestinal canal, 539.
Œsophagus, stricture of, 409.
Operative Surgery, review of Skey's, 121.
Orbit, fungoid tumour of, 253.
——, melanotic tumour of, 254
Osborne, peculiar appearance of tongue in malarial diseases, 555.
Otorrhœa, twenty years' duration, 364.
Ovarian tumour, 365.
Ovariotomy, 508, 511.

Ovary removed by mistake for a labial cyst, 511.
Oxalic acid, poisoning with, 532.
Ozone, Faraday on, 543.

P.

Paget, popliteal aneurism treated by pressure, 502.
Pancreatic fluid, experiments on, 207, 208.
Pappe, poisonous properties of Homeria collina, 536.
Paralysis, electro-magnetism in, 470.
Parker, oil of turpentine in excessive dose, 79.
Parkman, malignant disease of testicle, 84.
Parovarium of female, the analogue of epididymis in the male, 209.
Pauli, polypus of larynx, 227.
Peddie, contagiousness of puerperal fever, 528.
Pelvis, fracture of, with rupture of bladder, 78.
Pennsylvania State Medical Society, 283, 449.
Pericardial sac, absence of, 471.
Pharmacopœia of the United States, 201.
Phthisis, arrest of, 478.
Physiology, Bernard's discoveries in, 20, 337.
Piorry, air in liver, 485.
Poisoning by strychnine, 534.
——— by strawberries, 368.
——— by Scheele's green, 535.
——— by nicotine, 536.
———, statistics of, 534.
Poisonous properties of milky humour secreted by cutaneous pustules of common toad, 532.
Poisons, mineral, in nervous system, 535.
Polypus of larynx, 227.
Popliteal aneurism treated by compression, 278, 500, 501, 502, 503, 504, 505.
Pneumonia, fatal effects of tartar emetic in, 330.
———, urine in, 224.
Premature labour, mode of inducing, 516, 517.
Pruritus, treatment of, 226.
Puerperal fever, epidemics of, 518.
———, contagiousness of, 518, 521, 521.

Q.

Quain, arrest of phthisis, 478.

R.

Rabourdin, preparation of atropin by chloroform, 214.
Radcliffe, Philosophy of Vital Motion, 465.
Randolph, uses of Eustachian valve, 96.
Rape, 260, 261.
Rauch, topical application of chloroform, 112.
Récamier, galvanic cataplasms of, 477.
Rectum, diseases of, 468.
Redtenbacher, urine in pneumonia, 224.
Rheumatism, electro-magnetism in, 479.
Roberton, Diseases of Women, and Midwifery, notice of, 179.
Robin, antiseptics, 473.
Roe, fatal effects of chloroform, 271.
Rose, cod-liver oil in gaol cachexia, 683.
Roucher, presence of mineral poisons in nervous system, 535.

S.

Saunders, diffused femoral aneurism, 227.
Schönbein, some pathological effects of atmospheric electricity, 547.
Secondary hemorrhage after parturition, causes and treatment of, 529.
Shattuck, tuberculous diseases of mesenteric glands, lungs, liver, spleen, 80, 81.
———, tuberculous disease, 85.
———, chronic dysentery, 366.
Shoulder-joint, injury of, 245
———, amputation at, 327, 370.
Simpson, induction of premature labour, 517.
———, contagiousness of puerperal fever, 521.
Skey's Operative Surgery, review of, 121.
——— tourniquet, 245.
Skull of infant, compression of, during birth, 254.
Small-pox after vaccination, 218.
———, collodion to prevent pitting, 66.
——— in pregnant female, disease not communicated to child, 77.
Smith, congenital dislocation of head of radius forwards, 242.
———, fragilitas ossium, 248.
———, fatal case of inversion of uterus with attached placenta, 255.
———, molluscum, 396.
Statistics of medical schools, 283.
Sternum, absence of, 209.
Stewart, small-pox after a third vaccination, 218.
———, Henry's magnesia, 554.
Storer, ulceration of cæcum, 65.
———, collodion, to prevent pitting in variola, 66.
———, variola in pregnant female, disease not communicated to child, 77.
———, contagiousness of erysipelas, 78.
———, immediate division of funis in connection with sudden death of the newly-born, 82.
Strangulation in utero, 261.
———, pathological appearances in, 266.
Strawberries, poisoning by, 368.
Stricture of urethra treated by gum-elastic catheter, 239.
Strictures of urethra, treatment of, 507.
Strychnine, poisoning by, 534.
Swan, separate course of sensation, volition, and the involuntary power, 205.
Syphilitic ulcer and tubercular eruption, 371.

T.

Tænia, kousso in, 484.
Tannin as an antidote to strychnine, 534.
Tartar emetic, fatal effects of in pneumonia, 330.
Tartarized antimony in poisoning by arsenic, 262.
Temporal ridges of African cranium, 278.
Testicle retained in groin, 69.
———, malignant disease of, 84.

Testis, removal of diseased, 119.
Thayer, apoplexy and softening of the brain, 51.
Thore, excision of astragalus for fracture and dislocation of that bone, 512.
Tilt, diarrhœa as a symptom of menstruation, 257.
——, galvanic cataplasms, 477.
Tissue and its retrograde metamorphosis, 22.
Toad, poisonous properties of milky humour secreted by cutaneous pustules of, 532.
Tongue, peculiar appearances of, in malarial diseases, 555.
Tonsils, serious hemorrhage from incision of, 511.
Tournie, treatment of pruritus, 226.
Tourniquet, Skey's, 245.
Townsend, membranous croup, 85.
————, fractured vertebræ, 68.
Toynbee, effects of molluscous tumours in external auditory meatus, 485.
————, pathology of diseases of the ear with previous disease of brain, 499.
Tracheotomy in œdema of glottis, 236.
———— in epilepsy, 484.
Traill, poisoning by Scheele's green, 535.
Traumatic tetanus treated by chloroform, 498.
Tuberculous disease, 85.
———————— of mesenteric glands, lungs, liver, spleen, &c., 80, 81.
Tufnell, treatment of aneurism by compression, 197.
Turpentine in excessive doses, 79.

U.

Urethra, treatment of strictures of, 507.
————————————, with gum-elastic catheters, 239.
Urinary Deposits, Bird on, 447.
Urine in pneumonia, 224.
Urticaria produced by hyoscyamus, 369.
Uterus, absence of, 209.
———, congenital obliteration of mouth of, 238.
———, fatal case of inversion of, 255.
———, rupture of, 69.

V.

Vaccination, protective power of, 219.
————, small-pox after, 218.
Vaccination, value of, 215.
Vagina, congenital obliteration of, 238
———, occlusion of, relieved by operation, 13.
Veins, inflammation of, 484.
Venot, chloroform in gonorrhœa, 249.
Vertebræ, fractured, 68.
Vesico-vaginal fistula, 196.
Vienna Lying-in Hospital, practice of, 513.
Vital Motion, Philosophy of, 465.
—— properties in limbs in a state of cadaveric rigidity, 472.

W.

Walsh, erysipelas, 225.
Ward, compression of the skull of infant during birth, 254.
———, popliteal aneurism treated by pressure, 504.
Ware, ovarian tumour, 365.
Warren, amputation of shoulder-joint, 370.
———, fracture of pelvis and rupture of bladder, 78.
———, gangrene of appendix vermiformis, 369.
———, intracapsular fracture of cervix femoris, 88.
———, occlusion of vagina relieved by operation, 13.
———, testicle retained in groin, 69.
Webster, small-pox after vaccination, 218.
Whistler, tracheotomy in œdema of glottis, 236.
Williams, dislocation of lens, 84.
———, hypospadias, 79.
———, wounds of iris, 370.
Wills' Hospital, clinical report, 273, 549.
Women, diseases of, 179.
Wood, suits for malpractice, 43.
———, popliteal aneurism cured by compression, 278.
———, cod-liver oil in phthisis, 276.
Woorara poison, 214.
Wounding, 269.
Wright, method of preventing fat becoming rancid, 555.
Wurtz, bromine as a toxicological agent, 540.
Wythes' Microscopist, 464.

Z.

Ziehl, absence of uterus, 209.

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